

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

9
76917
Reserve

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27 January 10, 1935 No. 1
Personnel (Dec. 11-Jan. 10) and Field Station (Dec. 1-31)

PERSONNEL ITEMS

Mr. A. C. Dillman came to Washington from Minneapolis on December 23 for a few days to discuss plans for future work.

Dr. J. H. Martin came to Washington from Minneapolis on December 12 for a 3-day conference with Department personnel on plans for future work.

Mr. D. E. Stephens, Superintendent of the Sherman County Branch Station, Moro, Oreg., came to Washington December 31 for conferences with members of the Division staff on plans for continued experiments with cereals. He will be in Washington about 3 weeks.

Mr. Harland Stevens left Washington on January 10 to return to his headquarters at Aberdeen, Idaho.

The following members of the Division attended the meetings of the American Association for the Advancement of Science and affiliated societies at Pittsburgh, Pa., during the week of December 26, 1934: Dr. R. M. Caldwell, Dr. H. B. Humphrey, Dr. M. A. McCall, Dr. V. H. Morris, Dr. H. C. Murphy, Dr. J. D. Sayre, Dr. L. J. Stadler, Mr. G. H. Stringfield, and Mr. J. F. Trost.

PROOF OF PUBLICATIONS

Treat Seed Grain. A. G. Johnson, R. J. Haskell, and R. W. Leukel.
U. S. Dept. Agr. Misc. Pub. 219.

Sixth International Botanical Congress

It is requested that those individuals having any intention or desire to attend the Sixth International Botanical Congress to be held at Amsterdam, Holland, September 2-7, 1935, advise the Washington office as soon as possible. In justifiable cases it may be that attendance can be approved on the basis of no expense to the Government except for salary, which enables one to make the trip without using annual leave. A very brief statement as to the reasons for such attendance will be appreciated.

M. A. McCall.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau

B.P.I.Memo. 810

December 27, 1934

MEMORANDUM TO HEADS OF DIVISIONS.

Gentlemen:

Effective January 2, 1935, Mr. Henry W. Barre has been appointed Principal Pathologist in charge of the Division of Cotton and Other Fiber Crops and Diseases. Dr. M. A. McCall will continue as Principal Agronomist in charge of the Division of Cereal Crops and Diseases and Assistant Chief of Bureau.

I bespeak for Mr. Barre your hearty cooperation in his new responsibilities.

Sincerely yours,

(Signed) F. D. Richey

Chief of Bureau.

3

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Dec. 15) Small grain has made only little growth because of cold nights. All grain on the Substation is being pastured by sheep to pack the ground and keep down top growth. The uniform bunt nursery and other late seedings have germinated but owing to the cool weather have not fully emerged.

Weather conditions for the first half of December have been favorable for hardening small grain in preparation for winter. The maximum temperature for this period was 65° , while minimum temperatures were below freezing every night except four during the first half of the month. The minimum recorded was 21° . No precipitation was received during the period.

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Jan. 1) Small grain is in good condition although a rain would be welcome. Growth has been held in check by the cold nights so that grain has been able to get along with a minimum of moisture. Very little pasture has been furnished farmers as a result of these conditions.

It is reported from the Texas Panhandle that the varietal experiments with wheat at Spearman and Plainview have not emerged owing to continued drought. The experiment at Hereford has emerged to good stands.

The maximum temperature for December was 76° and the minimum, 21° . The precipitation was 0.41 inch. The weather has been unusually clear and open for this time of the year. The maximum temperatures during the day have been rather high but minimum temperatures at night have been around freezing most of the time so that small grain continues in good condition. The precipitation for the year was 9.94 inches below normal and the second lowest on record.

Southern Great Plains Field Station, Woodward (Wheat Improvement, Edmund Stephens) (Jan. 1) Winter wheat on the Station is in fairly good condition. The temperatures in November and December were rather mild, and the precipitation for these months was about a third more than normal. These rather favorable conditions enabled winter wheat to make as much growth as is desirable. Feed is scarce in northwestern Oklahoma, and many wheat fields have been pastured so heavily as to increase the danger of damage from blowing.

The precipitation for November totaled 1.93 inches in several showers. The December precipitation was 0.93 inch, of which 0.89 inch fell in one rain and snow that was particularly beneficial to winter wheat because there was practically no run-off. The maximum temperature for December was 69° on the 27th, the minimum 13° on the 14th and 26th.

KANSAS

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston) (Jan. 1) Conditions in the vicinity of Manhattan have been very favorable for winter wheat. The severe drought was broken in late August by a total precipitation of 0.64 inch. Moisture continued to fall in September, and a total of 4.71 inches was recorded for the month. October was a dry month with only 0.53 inch, but the November rainfall was considerably above normal, totaling 4.92 inches. The measurable precipitation in December has been scant and only about 1/2 inch was recorded; but there have been many cloudy days and enough rain to make the ground muddy.

4

Winter wheat sown in September and early October has made a very satisfactory growth in the eastern half of the State and has furnished considerable pasture, which was very sorely needed. In the extreme western part of the State much of the wheat did not emerge or is still too short for pasture and the problem of feed for livestock is a very serious one.

The winter-wheat, leaf-rust nursery was sown the first week in October. A total of 1,888 rows, exclusive of checks, was sown. Of this number, 1,326 rows were occupied by hybrids in various generations. Two successive seasons of drought, in which no reliable leaf-rust notes could be obtained, have made it necessary to carry many more lines than expected. Fall stands were excellent and the plants have made much top growth; in fact, more than desired. The mild fall and early winter, during which only two short periods of temperatures approaching 0° F. occurred, have favored top growth.

A trace of leaf rust was found on early sown wheat as early as October 24, but infection has not increased to any appreciable extent since that time. A few active uredia were found in the leaf-rust nursery on December 17. Septoria leaf blotch and mildew also were present in slight amounts on that date but no stem rust could be found.

Greenhouse experiments were started in late October and are proceeding satisfactorily. Studies on the effect of leaf rust on the rate of transpiration of the wheat plant are being continued. Physiologic form determinations on the collections made in the 1934 uniform rust nurseries also are under way. Studies on the inheritance of resistance are being continued.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, in absence of V. C. Hubbard, and Flax Breeding, J. C. Brinsmade, Jr. (Jan. 2) The drought has not abated in this locality. Snow flurries in December amounted to only 0.14 inch. The total precipitation for 1934 was only 8.13 inches, which is less than 50 percent of the average for the past 60 years and 2 inches less than the lowest annual precipitation previously recorded in any one year during this period.

Seed for wheat plots and nursery has been put up ready for seeding under the direction of Mr. Hubbard who made brief visits to the Station in December.

Temperatures were mild during the first half of December but below-average temperatures prevailed during the last half. The maximum temperature in December was 48° on Dec. 11 and the minimum -24° on Dec. 25.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland) (Nov. 3) Yield of flax varieties grown in three 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont. 1934

<u>Variety</u>	<u>C.I.no.</u>	<u>Yield (Bu. per A.)</u>	<u>Variety</u>	<u>C.I.no.</u>	<u>Yield (Bu. per A.)</u>
Redwing	109	7.5	Newland	188	5.6
Sib. No. 206	474	6.2	Selection of Buda	737	5.2
Selection 19 x 112	739	5.9	Bison	389	4.6
Linota	244	5.7	Rio	280	4.3

Agricultural Experiment Station, Bozeman (Flax Breeding, L. P. Reitz)
 (Dec. 13) Yield of flax varieties grown in triplicated 3-row nursery blocks,
 Bozeman, Mont., 1934. Seeded May 15; irrigated July 3, 1934.

<u>Variety</u>	<u>C. I. no.</u>	<u>Yield (Bu. per acre)</u>
North Dakota sel.	70	24.5
Crown ^{a/}	784	24.2
Newland (check)	188	23.5
Newland checks	188	23.3
Newland (checks)	188	23.1
Sel. 167 x 179	476	23.1
Argentine sel.	690	22.0
Sel. of Long 5 (19 x 112) x 19	466	21.6
Rio	743	21.5
Arg. Pale Verbena	280	21.4
B. Golden	416-3	21.0
19 x (19 x 112) ^{b/}	644	20.1
C.I. 161 Sel. B	739	18.8
Buda	487	17.7
Rosario (C. I. 161 sel.)	326	16.6
L. Golden	316	16.4
Bison	735	16.4
Linota	389	16.3
Redwing	244	16.0
Minn. sel.	320	15.7
Winona x Ottawa 77CB	684	15.2
Winona x C. I. 355 ^{a/}	672	15.1
Pale Blue	749	14.8
J. W. S. Fiber	387-1	14.1
Minn. sel.	388	13.1
Saginaw x Ottawa 77CB	656	11.8
Long Sib. x E ^{a/}	677	11.7
Minn. sel.	697	11.5
Ottawa 770 B	675	10.6
	355	10.4

a/ Only one replication. b/ Only two replications

UTAH

Agricultural Experiment Station, Logan (Cereal Agronomy, R. W. Woodward)
 (Jan. 2) There was a continuation of favorable weather in December. There was some snow in the valleys but no temperatures below zero. The precipitation for the callendar year 1934 totaled 12.21 inches, which is the lowest recorded at North Logan. Records do not go back beyond 1919, however. Nearly all the moisture came in the early part of 1934 and during the past 3 months. There was very little rainfall during the growing season.

In November there was one storm that was reported to be the first State-wide storm ever recorded. There was much variation in the rainfall in November at the various stations. At some stations it was as low as 0.48 inch, while at others the total was nearly 5 inches. In Cache Valley, Lewiston received over 2 inches more than Logan.

APR 22 1935

PLANT INDUSTRY

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

February 10, 1935

No. 2

Personnel (Jan. 11-Feb. 10) and Field Station (Jan. 1-31)

PERSONNEL ITEMS

Mr. C. E. Chambliss attended the meetings of the American Game Conference held in New York City January 21 to 23.

Dr. M. T. Jenkins attended the meetings of the Ohio State Corn and Grain show at Columbus, Ohio, January 29. He also conferred with State and Federal workers on cooperative corn investigations.

Dr. H. C. Murphy returned to Ames, Iowa, on January 15 after a week's conference with personnel of the Division regarding cooperative oat experiments.

Dr. Marcus M. Rhoades, who for the past five years has been assistant to Dr. R. A. Emerson of Cornell University in work on genetics of corn and breeding of disease-resistant strains of field and garden beans, has been appointed agent, effective February 7, to assist Dr. A. A. Bryan in the cooperative corn improvement program at Ames, Iowa, because of the transfer of Dr. M. T. Jenkins to Washington, D. C. Dr. Rhoades will have charge of the cooperative Iowa Corn Yield Test and will conduct research on the cytogenetics of corn.

Dr. Rhoades recently came to Washington to confer with members of the Division. Before going to Ames he returned to assist Dr. L. F. Randolph at Ithaca with corn genetics investigations and to care for the pollination of corn in the greenhouse that he expects to use at Ames in cooperative work.

PROOF OF PUBLICATIONS

Relation of Leaf Rust Infection to the Yield, Growth, and Water Economy of Two Varieties of Wheat. C. O. Johnston and E. C. Miller. Jour. Agr. Research (G-940). Galley proof read January 15.

A Cytological Study of Heterothallism in Puccinia sorghi. Ruth F. Allen. Jour. Agr. Research (G-942) Galley proof read January 19.

The Rusts of Cereal Crops. H. B. Humphrey, E. C. Stakman, E. B. Mains, C. O. Johnston, H. C. Murphy, and Wayne M. Bever. U. S. Dept. Agr. Circ. 341. Page proof read Jan. 21.

Effect of Parboiling Rough Rice on Milling Quality. Jenkin W. Jones and J. W. Taylor. U. S. Dept. Agr. Circ. 340. Page proof read Jan. 24.

RECENT PUBLICATIONS

Cercosporaella Foot Rot of Winter Cereals. Roderick Sprague and Hurley Fellows. U. S. Dept. Agr. Tech. Bull. 428, 24 pp., 6 pls., 3 figs. September 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon, Washington, and Idaho agricultural experiment stations.)

Treat Seed Grain. A. G. Johnson, R. J. Haskell, and R. W. Loukel. U. S. Dept. Agr. Misc. Pub. 219, 4 pp. December 1934.

A Cytological Study of Heterothallism in Flax Rust. Ruth F. Allen. Jour. Agr. Research 49(9): 765-791, 13 pls. November 1, 1934. (G-933) (Cooperative investigations between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Trichoderma Sheath Spot of Rice. E. C. Tullis. Phytopathology 24(12): 1374-1377, figs. 1-2. December 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana, Texas, and Arkansas agricultural experiment stations.)

E.C. Tullis

Leaf Smut of Rice in the United States. (Note) Phytopathology 24(12): 1386. December 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

The What and How of Hybrid Corn. Frederick D. Richey. U. S. Dept. Agr. Farmers' Bull. 1744, 14 pp., 5 figs. January 1935.

Registration of Varieties and Strains of Oats, VI. T. R. Stanton. Jour. Amer. Soc. Agron. 27(1): 66-70. January 1935.

Registration of Improved Wheat Varieties, VIII. J. Allen Clark. Jour. Amer. Soc. Agron. 27(1): 71-75. January 1935.

Effect of Crown Rust on the Cold Resistance of Oats. H. C. Murphy. (Abs.) Phytopathology 25(1): 28. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the botany and pathology section of the Iowa Agricultural Experiment Station.)

Effect of Crown Rust on Yield, Water Economy, and Composition of Oats. H. C. Murphy (Abs.) Phytopathology 25(1): 28-29. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the botany and plant pathology section of the Iowa Agricultural Experiment Station.)

USE OF GOVERNMENT TRANSPORTATION REQUESTS

Fill in all spaces on transportation requests, including the one indicated as "class," and make certain that the amount is shown on the carbon copy that is mailed to the Division of Cereal Crops and Diseases.

Transportation requests used for travel should be listed on the back of reimbursement vouchers (Form 1012).

H. S. Smith,
Junior Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE

Office of Director of Personnel

Washington, D. C.

January 14, 1935.

Personnel Circular No. 7.

REDEPOSIT OF RETIREMENT DEDUCTIONS
REFUNDED TO EMPLOYEES

Section 12 (b) of the Civil Service Retirement Act provides as follows:

"In the case of any employee to whom this act applies who * * * shall become absolutely separated from the service before becoming eligible for retirement on annuity, the amount credited to his individual account shall be returned to such employee together with interest at 4 per centum per annum, compounded on June 30 of each year; Provided, That when any employee becomes involuntarily separated from the service, not by removal for cause on charges of misconduct or delinquency, the total amount of his deductions, with interest thereon, shall be paid to such employee: and, Provided further, That all money so returned to an employee must, upon reinstatement, retransfer, or reappointment to a position coming within the purview of this act, be redeposited with interest before such employee may derive any benefits under this act, * * * but interest shall not be required covering any period of separation from the service."

The above provision of the Retirement Act means that if an employee of the Government is separated from a position subject to the Retirement Act and subsequently is reappointed, either by reinstatement or a new probational appointment, he can never obtain any status for retirement until he has redeposited the retirement deductions which he withdrew from the retirement fund at the time of his separation, although under his new appointment retirement deductions will be taken from his pay. Bureau officials are requested to bring this matter to the attention of all the employees coming under the provisions of the Retirement Act and they should be urged to file application on Form 3-R-32, which will be furnished by the bureau personnel office or by the Chief of the Division of Appointments of the Department upon application. These redeposits may be made in installments and in such amounts as the Civil Service Commission may direct in each individual case.

While it is optional with the employees as to whether or not redeposits are made, they should be advised of their status under the Retirement Act. The redeposits can, of course, be made at any time before reaching the retirement age, but inasmuch as the amounts to be refunded are subject to 4% compound interest from the time of reemployment until redeposits are made, it is decidedly to the advantage of the employees to make the redeposits as soon as possible.

There have been a number of cases in the Department where employees have become disabled and would have been eligible for disability retirement if the retirement deductions previously withdrawn had been redeposited. It is for just such cases that this circular is primarily issued as those retiring for age can anticipate such action by redepositing the retirement deductions in ample time before reaching the age of retirement. However, disability frequently occurs suddenly, and usually at a time when the employee is not financially prepared to redeposit his retirement deductions. Installment payments make it easy for employees to redeposit their retirement deductions and secure the automatic restoration of the benefits of the Retirement Act.

(Signed) W. W. Stockberger

Director.

UNITED STATES DEPARTMENT OF AGRICULTURE

Office of Director of Personnel

Washington, D. C.

February 9, 1935

Personnel Circular No. 9

Designation of Beneficiary and Death Claims under Retirement Act

The Civil Service Commission has advised this Department that it has been decided to handle certain retirement forms by distribution direct to the claimants by the Civil Service Commission rather than by furnishing a supply of the forms through the various departments. The specific forms are:

- 2806-2, "Change of Beneficiary"
- 3007, "Claim of Beneficiary"
- 3006, "Application for Payment of Amount due Deceased Employee or Annuitant" (temporary form)

A supply of the above forms will be made available in the Office of the District Manager of each Civil Service district as well as in the offices of the Commission's representatives outside of the Continental limits of the United States, or the forms may be obtained from the Civil Service Commission in Washington, D. C.

Application for Payment of Accumulated Deductions, form 3-R 15, has been superseded by form 3006, supra, (temporary) and further use of said form 3-R 15 should be discontinued.

(Signed) W. W. Stockberger

Director.

A VIEWPOINT

The following quotation expresses a point of view which all of us who are engaged in scientific research can well keep in mind.

M. A. McCall.

Brierly, William B. Some viewpoints of an applied biologist. *Ann. Appl. Biol.* 21: [351]-355, 357. 1934.

Observation and experiment are important, but far more important is original and creative thought, a quality which is so singularly lacking in much of our research today. The experimental obsession, which so often leads to the promiscuous collection of data and the purposeless accumulation of trivial information, has usurped the throne of science and has almost completely obliterated the basic value of thought and theory which alone can guide its work and give order and significance to its results. The word "research" has assumed an aura of sanctity which hallows much futile irrelevancy.

It is sheer delusion that there is inherent value in the mere collection of facts, and we do not so much merely need more research as research in the right directions, research guided by imaginative vision and inspired intuition, systematised by creative original thought and synthesised by wisdom. The man who possesses that constructive vision and luminous quality of mind which fits him to carry out whole-time research fruitfully for more than a limited period is a very rare man indeed.

ORGANIZATION OF THE
DIVISION OF CEREAL CROPS AND DISEASES,

February 10, 1935,

M. A. McCall, Ph. D., Principal Agronomist in Charge.

WASHINGTON

PROJECTS:

Wheat:

- S. Cecil Salmon, Ph. D., Prin. Agron. In charge wheat and rye investigations.
 Aaron G. Johnson, Ph. D., Prin. Path. Flag smut, scab, Septoria.
 J. Allen Clark, M. S., Sr. Agron. Hard red spring and durum wheat.
 Karl S. Quisenberry, Ph. D., Agron. Hard red winter wheat; buckwheat.
 Herman A. Rodenhiser, Ph. D., Path. Physiologic specialization in smuts; genetics of smuts.
 Annie M. H. Karrer (Mrs.), Ph. D., Assoc. Physiol. Selenium in plants; bound water in relation to cold and drought resistance.
 Wm. J. Sando, M. S., Assoc. Agron. Breeding, species hybrids, cytology, physiology.
 Burton B. Bayles, M. S., Assoc. Agron. Wheat in western region.
 Colburn C. Fifield, B. A., Assoc. Bak. Tech. Milling and baking.
 Charles E. Bode, M. S., Jr. Tech. Milling and baking.
 Sidney R. Snider, B. S., Jr. Chem. Chemical determinations, wheat and flour.
 Aline F. Kempton (Mrs.), A. B., Jr. Path. Wheat diseases; also oats, barley, corn.
 Clarence G. Colcord, Sci. Aid. Wheat agronomy.

Oats:

- T. Ray Stanton, M. S., Sr. Agron. In charge.
 Harry B. Humphrey, Ph. D., Prin. Path. Cereal rusts.
 Franklin A. Coffman, M. S., Assoc. Agron.

Barley:

- Harry V. Harlan, D. Sc., Prin. Agron. In charge.
 Merritt N. Pope, Ph. D., Agron.
 Mary L. Martini, B. S., Asst. Bot.
 Lucille Reinbach, B. A., Jr. Agr. Stat.

Rice Production and Improvement:

- Jenkin W. Jones, M. S., Sr. Agron. In charge.

Rice Technology (and wild rice):

- Charles E. Chambliss, M. S., Assoc. Agron. In charge.

Corn:

- Merle T. Jenkins, Ph. D., Prin. Agron. In charge.
 Neil E. Stevens, Ph. D., Sr. Path. Diseases.
 Curtis H. Kyle, B. S., Sr. Agron. Corn in Southern States.
 Charlotte Elliott, Ph. D., Assoc. Path. Cereal bacteria investigations, and milo root and stalk diseases.

Grain Sorghums and Broomcorn (and proso):

- John H. Martin, Ph. D., Sr. Agron. In charge.

Seed Flax:

- Arthur C. Dillman, M. S., Assoc. Agron. In charge.

ADMINISTRATIVE:

Hugh S. Smith, Head Clerk.
 Anna H. B. Kinney (Mrs.), Editorial clerk.
 Elizabeth C. Lambert, Accounts.
 Charles F. Heasty, Property and supplies.
 Eva P. LeFever (Mrs.), Mail and files.

FIELD STATIONS (Cooperative with the State Agricultural Experiment Stations).

[Names starred (*) are part-time employees. Where two or more individuals are engaged on the same project at a station, a figure (1) is placed opposite the name of the one in charge.]

ARIZONA:

Tucson - Agricultural Experiment Station.
 Arthur T. Bartel, M. S., Jr. Agron. (Cereal production and improvement; wheat, grain sorghums, barley, oats.)

ARKANSAS:

Fayetteville - Agricultural Experiment Station.
 Edgar C. Tullis, Ph. D., Agent (Rice diseases).

Stuttgart - Rice Branch Experiment Station.
 C. Roy Adair, M. S., Jr. Agron. (Rice breeding; oats).

CALIFORNIA:

Berkeley - Agricultural Experiment Station.
 Ruth F. Allen, Ph. D., Path. (Cytology of rusts).

Biggs - Biggs Rice Field Station.
 Loren L. Davis, M. S., Asst. Agron. and Supt. (Rice prod. and improvement).

Davis - Agricultural Experiment Station.
 Gustav A. Wiebe, Ph. D., Asst. Agron. (Cereal prod. and improvement; wheat, barley, oats),

COLORADO:

Akron - United States Dry Land Field Station.
 John J. Curtis, B. S., Jr. Agron. (Cereal prod. and improvement; wheat, oats, barley, grain sorghums, proso, corn).

GEORGIA:

Tifton - Coastal Plain Experiment Station.
 Harry S. Garrison, B. S., Asst. Agron. (Corn inv.; oats).

IDAHO:

Aberdeen - Aberdeen Substation.
 Harland Stevens, B. S., Agent (Cereal prod. and improvement; barley, oats, wheat).

Moscow - Agricultural Experiment Station.

Wayne M. Bever, M. S., Jr. Path. (Stripe rust and bunt).

ILLINOIS:

Bloomington - Funk Bros. Seed Co.
 James R. Holbert, Ph. D., Sr. Agron. (Corn root-rot, stalk-rot, and ear-rot diseases; corn breeding and physiology). (1)
 Boyd C. Frye, Asst. Sci. Aid (Corn root-rot, stalk-rot, and ear-rot diseases).

INDIANA:

Lafayette - Agricultural Experiment Station.
 John F. Trost, M. S., Assoc. Path. (Corn root-rot, stalk-rot, and ear-rot diseases; sweet-corn diseases). (1)
 Ralph R. St. John, M. S., Assoc. Agron. (Corn breeding; corn root-rot, stalk-rot, and ear-rot diseases).
 Glenn M. Smith, M. S., Asst. Path. (Sweet-corn diseases; breeding).
 Ralph M. Caldwell, Ph. D., Assoc. Path. (Leaf rusts). (1)
 Leroy E. Compton, M. S., Asst. Path. (Leaf rusts).

IOWA:

Ames - Agricultural Experiment Station.
 Arthur A. Bryan, Ph. D., Agron. (Corn invs.). (1)
 Marcus M. Rhoades, Ph. D., Agent (Corn invs.).
 Hickman C. Murphy, Ph. D., Asst. Path. (Oat crown rust).
 Lyman C. Burnett*, M. S., Agent (Cereal breeding and agronomy).
 Robert W. Jugenheimer, B. S., Agent (Corn invs.).

KANSAS:

Hays - Fort Hays Branch Station.
 Arthur F. Swanson, M. S., Assoc. Agron. (Cereal prod. and improvement; wheat, grain sorghums, broomcorn, barley, oats, corn). (1)
 Robert A. Hunter*, Agent (Cereal prod. and improvement).

Manhattan - Agricultural Experiment Station.
 Arthur M. Brunson, Ph. D., Agron. (Corn invs., pop corn).
 John H. Parker*, Ph. D., Agron. (Cereal breeding; wheat, grain sorghums, barley, oats). (1)
 Alvin E. Lowe, Agent (Cereal breeding).
 Hurley Fellows, Ph. D., Assoc. Path. (Wheat foot rots). (1)
 Christian H. Ficke, M. S., Jr. Path. (Wheat foot rots).
 Charles O. Johnston, M. S., Assoc. Path. (Leaf rusts).

LOUISIANA:

Baton Rouge - Agricultural Experiment Station.
 Hugo F. Stoneberg, M. S., Asst. Agron. (Corn invs.).

Crowley - Rice Experiment Station.
 J. Mitchell Jenkins*, B. S., Assoc. Agron. and Supt. (Rice prod. and improvement).
 Nelson E. Jodon, M. S., Jr. Agron. (Rice breeding).

MINNESOTA:

St. Paul (University Farm) - Agricultural Experiment Station.
 Moses N. Levine, Ph. D., Path. (Stem rust, physiologic forms).
 Elmer R. Ausemus, Ph. D., Assoc. Agron. (Wheat breeding nursery).
 Rayburn H. Bamberg, Ph. D., Agent (Cereal diseases).

MISSOURI:

Columbia - Agricultural Experiment Station.
 Lewis J. Stadler*, Ph. D., Sr. Geneticist. (Corn invs.) (1)
 George F. Sprague, Ph. D., Assoc. Agron. (Corn invs.).

Elsberry (P. O. address: Agricultural Experiment Sta., Columbia, Mo.)
 Bascom M. King*, A. M., Agent (Rice prod. and improvement).

MONTANA:

Moccasin - Judith Basin Substation.
 Joe L. Sutherland, M. S., Jr. Agron. (Cereal prod. and improvement; wheat, oats, barley, flax).

NEBRASKA:

Lincoln - Agricultural Experiment Station.
 Coit A. Suneson, M. S., Jr. Agron. (Wheat prod. and improvement).

NEW YORK:

Ithaca - Cornell University Agricultural Experiment Station.
 Lowell F. Randolph, Ph. D., Assoc. Cytol. (Cytology, histology, and morphology of corn).
 William T. Craig*, Agent (Cereal prod. and improvement; wheat, oats, barley).

NORTH DAKOTA:

Dickinson - Dickinson Substation.
 Ralph W. Smith, M. S., Assoc. Agron. (Cereal prod. and improvement; wheat, oats, barley, flax, corn, rye, proso).

Fargo (State College Station) - Agricultural Experiment Station.

Harold H. Flor, Ph. D., Assoc. Path. (Flax diseases).

Glenn S. Smith, M. S., Jr. Agron. (Cereal prod. and improvement; wheat, oats, barley, proso).

Mandan - Northern Great Plains Field Station.

John C. Brinsmade, Jr., A. B., Asst. Agron. (Cereal prod. and improvement; flax, wheat, oats, barley).

OHIO:

Wooster - Agricultural Experiment Station.

Jasper D. Sayre, Ph. D., Physiol. (Corn physiology). (1)

Vincent H. Morris*, Ph. D., Agent (Physiology and biochemistry of corn).

Glen H. Stringfield, M. S., Agent (Corn invs.). (1)

OKLAHOMA:

Woodward - Southern Great Plains Field Station.

John B. Sieglinger, M. S., Agron. (Grain sorghums and broomcorn).

Vincent C. Hubbard, M. A., Jr. Agron. (Cereal prod. and improvement; wheat, oats, barley).

OREGON:

Corvallis - Agricultural Experiment Station.

Roderick Sprague, Ph. D., Asst. Path. (Wheat foot rots and bunt).

Moro - Sherman County Branch Station.

David E. Stephens*, B. S., Sr. Agron. and Supt. (Cereal prod. and improvement; wheat, barley, oats). (1)

Robert B. Hoskinson, Sr. Agr. Aid (Cereal prod. and improvement).

Pendleton - Pendleton Field Station.

J. Foster Martin, M. S., Jr. Agron. (Cereal prod. and improvement; wheat, barley, oats).

SOUTH DAKOTA:

Redfield - U. S. Field Station. (Work at Redfield being discontinued; other headquarters not yet determined.)

Edgar S. McFadden, B. S., Assoc. Agron. (Cereal prod. and improvement; wheat, oats, barley, proso).

TENNESSEE:

Knoxville - Agricultural Experiment Station.

Ludwig S. Mayer, M. S., Asst. Agron. (Corn invs.).

TEXAS:

Beaumont - Substation No. 4.

Henry M. Beachell, M. S., Agent (Rice breeding).

Denton - Substation No. 6.

Irvin M. Atkins, B. S., Jr. Agron. (Cereal prod. and improvement; wheat, oats).

UTAH:

Logan - Agricultural Experiment Station.

Rollo W. Woodward, M. S., Jr. Agron. (Cereal prod. and improvement; wheat, oats, barley, corn, grain sorghums, flax).

VIRGINIA:

Rosslyn - Arlington Experiment Farm.

John W. Taylor, M. S., Assoc. Agron. (Cereal prod. and improvement). (1)

Harold H. McKinney, M. S., Sr. Path. (Virus diseases and cereal physiology).

Victor F. Tapke, Ph. D., Path. (Barley smuts).

Robert W. Leukel, M. S., Assoc. Path. (Wheat nematode, seed treatments, sorghum diseases).

Lytton W. Boyle, Ph. D., Asst. Path. (Wheat foot rots).

Lonnie M. Starr, Asst. Field Aid (Cereal prod. and improvement).

Harry L. Marshall, Farm Laborer (Cereal pathology).

Frank V. Stevenson, Farm Laborer (Oats).

WASHINGTON:

- Pullman - Agricultural Experiment Station.
 Edward F. Gaines*, Sc. D., Agent (Cereal prod. and improvement; wheat, oats, barley).
 Charles S. Holton, Ph. D., Agent (Cereal smuts).
 Orville A. Vogel, M. S., Agent (Wheat prod. and improvement).

WISCONSIN:

- Madison - Agricultural Experiment Station.
 James G. Dickson*, Ph. D., Agent (Barley diseases, corn diseases, wheat scab).
 Allan D. Dickson, Ph. D., Agent (Barley malting).
 Paul E. Hoppe, B. S., Assoc. Path. (Corn diseases).
 Ruebush G. Shands, Ph. D., Agent (Barley and wheat).
 Helen Johann, M. A., Assoc. Path. (Corn diseases, wheat scab).
 Chester Barlow*, Asst. Sci. Aid (Cereal diseases).

COOPERATIVE CEREAL EXPERIMENTS SUPERVISED LOCALLY BY MEN
 NOT EMPLOYED BY THE DIVISION OF CEREAL CROPS AND DISEASES
 (Excluding small cooperative disease and breeding
 nurseries and farmers' trials)

ARIZONA:

- Mesa - Salt River Valley Experiment Farm (C. J. Wood)
 A. T. Bartel, Tucson, Ariz. (Wheat).
Sacaton - U. S. Field Station.
 C. J. King (Barley, wheat, grain sorghums).

COLORADO:

- Ft. Collins - Agricultural Experiment Station.
 D. W. Robertson (Wheat).
Hesperus - Fort Lewis Substation.
 D. W. Koonce (Wheat).

GEORGIA:

- Experiment - Georgia Experiment Station.
 R. P. Bledsoe (Wheat, oats, barley, rye).

IDAHO:

- Felt - High Altitude Station.
 W. A. Moss (Wheat).
Sandpoint - Sandpoint Substation.
 J. H. Christ (Wheat)

ILLINOIS:

- Urbana - Agricultural Experiment Station.
 J. R. Holbert, Bloomington, Ill. (Corn breeding and physiology).

KANSAS:

- Colby - Colby Experiment Station.
 E. H. Coles (Wheat).

MINNESOTA:

- Crookston - N. W. Experiment Station.
 R. S. Dunham (Wheat)
Morris - West Central Experiment Station.
 R. O. Bridgford (Wheat).
St. Paul - Agricultural Experiment Station.
 A. C. Army (Flax).
Waseca - S. E. Experiment Station.
 R. E. Hodgson (Wheat).

MONTANA:

- Bozeman - Agricultural Experiment Station.
 L. P. Reitz (Wheat, oats, flax).
Havre - Northern Montana Substation.
 M. A. Bell (Wheat, flax).

NEBRASKA:

- Alliance - Box Butte Experiment Farm.
 C. A. Suneson, Lincoln, Nebr. (Wheat).
North Platte - North Platte Substation.
 L. L. Zook (Wheat).
Valentine - Valentine Substation.
 E. M. Brouse (Wheat).

NEW MEXICO:

- Tucumcari - U. S. Field Station.
 D. R. Burnham (Grain sorghums and broomcorn)

NORTH DAKOTA:

- Edgeley - Edgeley Substation.
 O. A. Thompson (Wheat).
Hettinger - Hettinger Substation.
 C. H. Plath (Wheat).
Langdon - Langdon Substation.
 G. S. Smith (Wheat, oats, barley, proso).
Williston - Williston Substation.
 E. G. Schollander (Wheat).

CHIO:

- Columbus - Agricultural Experiment Station.
 G. H. Stringfield, Wooster, Ohio (Corn breeding).
Oak Harbor -
 G. H. Stringfield, Wooster, Ohio (Corn borer agronomic experiments).

OKLAHOMA:

- Helena -
 C. B. Cross, Stillwater, Okla. (Wheat).
Goodwell - Panhandle A. & M. College.
 H. A. Daniels (Wheat).
Lawton - U. S. Field Station.
 W. M. Osborn (Wheat, oats, barley, grain sorghums)
Stillwater - Agricultural Experiment Station.
 C. B. Cross (Wheat).

OREGON:

- Burns - Harney County Branch Station.
 Obil Shattuck (Wheat).
Corvallis - Agricultural Experiment Station.
 D. D. Hill (Wheat).
Union - Oregon State Livestock Branch Station.
 D. E. Richards (Wheat).

SOUTH DAKOTA:

- Brookings - Agricultural Experiment Station.
 K. H. Klages (Wheat).
Eureka - Eureka Substation.
 Walter Schonbrod (Wheat).
Highmore - Highmore Substation.
 S. W. Sussex (Wheat).
Newell - U. S. Experiment Farm.
 Beyer Aune (Wheat).

TEXAS:

- Amarillo - Price Memorial College.
 I. M. Atkins, Denton, Tex. (Wheat, oats).
Big Spring - U. S. Field Station.
 F. E. Keating (Grain sorghums and broomcorn).
Dalhart - U. S. Field Station.
 B. F. Barnes (Grain sorghums and broomcorn).
San Antonio - U. S. Field Station.
 G. T. Ratliffe (Flax, grain sorghums).

UTAH:

- Nephi - Nephi Dry-Farm Substation.
 A. F. Bracken (Wheat).

WASHINGTON:

- Lind - Adams Branch Experiment Station.
 H. M. Wanzer (Wheat).
Prosser - Irrigation Branch Experiment Station.
 H. P. Singleton (Wheat).

WYOMING:

- Cheyenne - Cheyenne Experiment Farm.
 A. L. Nelson (Wheat).
Sheridan - U. S. Field Station.
 R. S. Towle (Wheat, oats, barley, flax).

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)
(Jan. 24)

The maximum temperature for December was 79°. The minimum temperature was 23° and ice formed on 5 days.

The total precipitation for the month was 3.48 inches, or 2.71 inches less than the 24-year average for December. While the precipitation was much less than in December 1933, it was distributed more evenly. This, with the low temperatures caused very unfavorable conditions for field work, and for cattle.

The killing, so early in the winter, of grass and second growth rice will result in great loss of cattle from starvation and exposure, unless the remainder of the winter is exceptionally mild.

Farm work on the station comprised mainly plowing, levee construction, and recleaning of seed rice.

The station has more orders for seed of Fortuna, Rexoro, Nira, and Iola than it can come near supplying.

ARKANSAS

Rice Branch Station, Stuttgart (Rice Production and Improvement, C. R. Adair) (Jan. 31)

The cold weather of last week left quite a mark on the oats. We have had minimum temperatures ranging from 10 to 28° F. for the past 10 days. We had a little snow on January 21, which was some protection to the plants during the coldest weather. All varieties have some injury to the leaves and some of the more tender varieties have all the leaves killed, but I think there are only a very few that have the entire plant killed. For example, most of the leaves of the Bond variety are killed, but the crown does not seem to be injured. Some of the varieties in the rust nursery are killed, but I think there will be a few plants of most of the varieties.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (Jan 31)

The weather conditions in January were favorable for crops except for a severe "norther" on the 20th, which destroyed the greater part of the grain crop in this section. The mean temperature for the month was 48.4° , or 4.1° above normal. The maximum temperature was 79° with temperatures in the 70° 's on 9 days. The minimum temperature was 7° F. The precipitation for the month was 4.45 inches, which is 2.12 inches above normal.

The norther on January 20 was preceded by three days of rain, amounting to 3.91 inches, which broke the drought that had persisted since last May. Rains during the fall and winter months have been barely ample for plant needs, and no subsoil moisture had been stored. Unusually warm weather had prevailed in December and all cereals were in a non-hardened condition. From a temperature of 58° on the afternoon of the 20th, the temperature dropped to 7° F. the following morning. Freezing temperatures or lower persisted for several days so that the ground was frozen to a considerable depth. The damage was increased by severe heaving of the soil owing to its saturated condition. Although the severity of the damage cannot entirely be determined as yet, it appears that all barley and oats and most of the wheat is killed. There is considerable variation from farm to farm and field to field due to differences in soil. On the Station part of the wheat survived, although the main wheat nursery was lost. Barley and oats are being reseeded as rapidly as possible.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, in absence of V. C. Hubbard, and Flax Breeding, J. C. Brinsmade, Jr.) (Feb. 1)

The total precipitation in January, occurring in light snow flurries, amounted to only 0.13 inch. The weather was extremely cold for about two weeks in the middle of the month. It was mild the remainder of the month. The maximum temperature was 48° on Jan. 31 and the minimum -35° on Jan. 22.

The thin layer of snow covering the winter wheat probably was insufficient protection against the extreme temperatures. The plants appear to be dead above ground.

The flax F_1 hybrids in the greenhouse have made good growth but have not commenced blooming.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (Feb. 7)

The mean temperature of 51.9° for January was somewhat above the normal over a period of years. A rainfall of 1.25 inches was recorded for the month, as compared with a normal precipitation of 0.72 inch.

The minimum temperature was 21° for several consecutive days. Considerable leaf injury resulted, especially in several varieties of oats. Earlier sown varieties were injured more than the same varieties sown later.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

March 10, 1935

No. 3

Personnel (Feb. 11 - March 10) and Field Station (Feb. 1 - 28)

PERSONNEL ITEMS

Dr. S. C. Salmon came to Washington from Minneapolis, Minn., on March 2 to confer with members of the Department of Agriculture. He returned March 9 to Minneapolis to continue his work connected with the Seed Stocks Conservation Committee.

Mr. Edmund Stephens, formerly junior agronomist in wheat improvement at the Southern Great Plains Field Station, Woodward, Okla., has been appointed assistant to the Director of Finance, office of the Secretary of Agriculture, Washington, D. C.

Dr. Gustav A. Wiebe left Washington on February 21 after a stay of several weeks to confer with members of the Division on cooperative experiments with cereal crops in California.

RECENT PUBLICATIONS

Iowa Corn Yield Test. Results for 1934. Joe L. Robinson and A. A. Bryan. Iowa Corn and Small Grain Growers' Assoc. Rpt. no. 15, 30 pp., illus. February 1935. (Cooperation between the Iowa Corn and Small Grain Growers' Association and the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Fifteen Years of Selection in Six Varieties of Barley. Merritt N. Pope. Jour. Amer. Soc. Agron. 27(2): 142-148, figs. 1-2. February 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Inheritance of Rye Crossability in Wheat Hybrids. J. W. Taylor and K. S. Quisenberry. Jour. Amer. Soc. Agron. 27(2): 149-153. February 1935.

The Rusts of Cereal Crops. H. B. Humphrey, E. C. Stakman, E. B. Mains, C. O. Johnston, H. C. Murphy, and Wayne M. Bever. U. S. Dept. Agr. Circ. 341, 27 pp., 10 figs. February 1935.

Histological Characters of Flax Roots in Relation to Resistance to Wilt and Root Rot. Lytton W. Boyle. U. S. Dept. Agr. Tech. Bull. 458, 19 pp., pls. 1-4. December 1934. (Cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station and the University of Wisconsin.) (March 1)

Office of Chief of Bureau
B. P. I. Memo No. 818

February 11, 1935.

MEMORANDUM FOR HEADS OF DIVISIONS

Concerning:

In the audit of reimbursement vouchers, the General Accounting Office checks very closely on the purchase of one-way tickets to determine whether round-trip tickets were available. In a number of cases, we have been required to make collections from individuals where it was clear that a round-trip ticket should have been purchased. It is suggested that you call to the attention of members of your staff who have occasion to travel the desirability of determining carefully in advance of travel whether a round-trip ticket can be secured and utilized advantageously. Where a one-way ticket has been used, the reimbursement voucher should carry a careful statement showing why the purchase of a round-trip ticket was not practicable.

Very sincerely,

(Signed) H. E. Allanson

H. E. Allanson
Business Manager
Bureau of Plant Industry.

UNITED STATES DEPARTMENT OF AGRICULTURE

Office of Director of Personnel

Washington, D. C.

February 14, 1935

Personnel Circular No. 10

ONE YEAR PROBATION REQUIRED FOR ALL
PROFESSIONAL EMPLOYEES

Effective March 1, 1935, all probational employees appointed in all grades of the professional service of the Department of Agriculture will be required to serve a one year probationary period, instead of six months.

This decision has been reached after a survey made of all the Bureaus of the Department of Agriculture. It was the consensus of opinion of a great majority of officials contacted that the period of probation should be changed from six months to one year for all professional employees and the Civil Service Commission, under date of February 9, 1935, approved this change.

(Signed) W. W. Stockberger

Director.

UNITED STATES DEPARTMENT OF AGRICULTURE
 Office of Personnel
 Washington

February 14, 1935.

Division of Appointments

MEMORANDUM TO CHIEFS OF BUREAUS

Reference is made to memorandum dated November 7, 1934, from this office, with which was transmitted Retirement Circular No. 76, issued by the Civil Service Commission on the designation of a beneficiary under the Civil Service Retirement Act. The Civil Service Commission has, under date of February 8, 1935, issued a supplement to Retirement Circular No. 76, wherein they stressed the desirability of having Forms 2806-1, Designation of Beneficiary, and 2806-2, Change of Beneficiary, forwarded to the Civil Service Commission promptly on the date of execution thereof.

I quote for the information of the Bureau the contents of the supplement:

"In the interest of good administration and for the protection of persons who have been designated as beneficiaries under the Act of June 22, 1934, it is very important that form 2806-1, Designation of Beneficiary, and form 2806-2, Change of Beneficiary, be forwarded to the Civil Service Commission on the day of execution thereof. A delay of EVEN A DAY may defeat the purpose of the Act. It will be noted that paragraph 2 of the regulations provides that:

"The designation of a beneficiary, shall be filed with the Civil Service Commission in duplicate prior to the death of said annuitant or employee to have full force and effect.

"Paragraph 3 of General Information, Retirement Circular No. 76, reads as follows:

"The test for the validity of a "Designation of Beneficiary" (Form 2806-1) or a "Change of Beneficiary", as noted on Form 2806-2, will among other things, be the DATE OF RECEIPT stamped thereon by the Civil Service Commission prior to the death of the annuitant or employee.

"The Commission observes that as long as a month has intervened between the date of execution and the receipt by the Commission of properly completed designations, and in some instances death of the designator during the interim has nullified a designation. Too much stress cannot be placed upon the importance and value of these designations. They mean much not only to the annuitant or employee but also to the beneficiary designated therein and therefore should not be handled as merely routine.

"It is requested therefore that all employees under your supervision who have authority to complete the certificate of U. S. Government official on beneficiary designations be promptly advised of the absolute necessity of forwarding all such designations to the Civil Service Commission on date of execution. The title of the supervising official should be indicative of the position of a supervisor. Such titles as clerk, chemist, etc., do not indicate such authority unless followed by some such word as "Supervisor". A designation certified by a Notary Public, to be fully effective, should show also his department or office and his supervisory capacity. All certificates should be dated, and SIGNED by both designator and official and forwarded IMMEDIATELY".

Very truly yours,

(Signed) P. L. Gladmon

Chief, Division of Appointments.

FIELD STATION CONDITION AND PROGRESS

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (Feb. 19)

Weather conditions in January were somewhat extreme. The maximum temperature reached 81° on the 21st, and by 8 o'clock on the 22d it had dropped to 20°, the lowest for the month. Ice formed on 5 days. A temperature of 40° or below was recorded on 13 days.

The precipitation totaled 2.40 inches, which is 2.91 inches less than the 25-year average for January.

The heaviest snowfall in several years, in fact one of the few to occur in the past 25 years, was recorded on January 21 and 22. Sleet started falling, but turned into snow about 4 P. M. on the 21st and continued until nearly noon of the 22d. A strong north wind and temperatures below freezing accompanied the snow, causing it to drift. For this reason it was hard to measure. The total was estimated at about two inches.

Cattle suffered much during the cold weather and some of the weaker ones died. Practically the only feed left is rice straw. The sudden cold weather killed down grass and even clovers, all of which were very tender because of the unusually warm weather prior to the freeze.

Field work on the station is well advanced. Operations in January included mainly levee construction, necessary for the continuance of experiments begun last season.

(March 5)

Weather conditions in February were similar to those of last year, although the precipitation was greater and the minimum temperature lower.

The total precipitation of 5.28 inches was recorded on 7 days. The 24-year average for February is 4.18 inches.

The maximum temperature was 76°. The minimum temperature was 26° and ice formed on 3 days.

Work on the station advanced nicely. Levee construction work is nearly complete and ridges for row crops have been made.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy, in absence of V. C. Hubbard, and Flax Breeding, J. C. Brinsmade, Jr.) (Mar. 2)

Exceptionally warm weather prevailed throughout most of February. The maximum temperature was 57° on February 17 and the minimum -7° on February 25. Snow in February, most of which fell on February 14, amounted to a total of 0.36 inch of precipitation. The snow melted rapidly so that the ground was bare throughout most of the month.

Some of the winter wheat in small patches that had some snow protection during the extremely cold period in January apparently is still alive. The remainder appears to be dead.

The flax F₁ hybrids in the greenhouse have made excellent growth and have commenced blooming.

Mr. V. C. Hubbard left for Washington, D. C., on March 1 after a brief visit to this station.

UTAH

Agricultural Experiment Station, Logan (Cereal Agronomy, R. W. Woodward)
(March 1)

Another rather mild winter has been experienced. On only 3 days was the temperature below zero. There has been little or no snow covering on the valley floors in most of the State, yet in Cache Valley winter wheat has had a light snow cover most of the winter. This has just begun to melt and the wheat appears to be in good condition.

Seeding has already begun in some counties, but as yet little farm work has been done in northern Utah.

The water supply is likely to be short again and the possibility of much run-off is doubtful, as the snow line is much the same as that of last spring. The precipitation for January was 1.06 inches and for February 0.91 inch. This is lower than for the same period last year.

If present weather conditions continue the seeding of county nurseries will begin in the near future.

ARIZONA

Agricultural Experiment Station, Tucson (Cereal Agronomy, A. T. Bartel) (March 5)

The small-grain varietal nursery is in excellent condition. Although the varieties are making rapid growth, it is doubtful if any of them will head within the next two weeks.

The mean temperature in February was 55° -- only slightly above normal -- and the minimum was 29°. The rainfall was 2.43 inches of which 1.71 inches fell on February 6 and 7. The normal precipitation for February (for the past 60 years) is 0.89 inch.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

April 10, 1935

No. 4

Personnel (March 11 - April 10) and Field Station (March 1 - 31)

PERSONNEL ITEMS

Mr. I. M. Atkins came to Washington on February 13 to confer with members of the Division staff on cooperative cereal experiments in Texas. He left on March 21 to return to his headquarters at Denton, Texas.

Mr. Chester A. Barlow, assistant scientific aid in the cooperative barley investigations under the direction of Dr. J. G. Dickson at Madison, Wis., died on March 21.

Dr. H. H. Flor was in Washington for two weeks to confer with members of the Division staff on cooperative experiments with flax rust and to complete a manuscript. He left Washington on March 16 to return to his headquarters at Fargo, N. Dak.

Dr. H. V. Harlan left Washington on March 29 for Chicago to interview members of the malting trade in connection with barley investigations. He will be at Sacaton, Ariz., for about 6 weeks to take notes on and harvest the barley nursery. He will also spend some time in California, Oregon, Utah, and Idaho in the interests of cooperative barley plantings and breeding operations and will confer with State and Federal officials on cooperative experiments.

Mr. V. C. Hubbard came to Washington the first week in March to consult with members of the Division on cooperative cereal experiments in North Dakota.

Mr. Hubbard's headquarters were changed, effective March 20, from Mandan, N. Dak., to Woodward, Okla., where he will succeed Mr. Edmund Stephens in charge of wheat improvement at the Southern Great Plains Field Station. Mr. Hubbard left Washington on March 15 to return to Mandan before proceeding to Woodward to take up his new work.

Dr. H. B. Humphrey left Washington on March 21 for Ames, Iowa, Manhattan, Kans., Minneapolis, Minn., and La Fayette, Ind., to confer with officials of agricultural experiment stations and Division employees on cooperative rust research and future experiments. He returned to Washington on April 4.

Dr. M. T. Jenkins recently conferred with State and Federal employees at Knoxville, Tenn., Baton Rouge, La., and La Fayette, Ind., on cooperative experiments with corn, returning to Washington on April 8.

The following members of the Division staff were authorized to attend a meeting at Lincoln, Nebr., on April 11-12 to discuss results that have been obtained in the cooperative winter wheat improvement program and to make plans for future work:

I. M. Atkins, Denton, Texas; E. R. Ausenius, University Farm, St. Paul, Minn.; J. J. Curtis, Akron, Colo.; Hurley Fellows, Manhattan, Kans.; C. C. Fifield, Washington, D. C.; V. C. Hubbard, Woodward, Okla.; C. O. Johnston, Manhattan, Kans.; A. H. Lowe, Manhattan, Kans.; E. S. McFadden, Redfield, S. Dak.; J. H. Parker, Manhattan, Kans.; K. S. Quisenberry, Washington, D. C.; H. A. Rodenhiser, Washington, D. C.; S. C. Salmon, Washington, D. C.; J. B. Sieglinger, Woodward, Okla.; J. L. Sutherland, Moccasin, Mont.; A. F. Swanson, Manhattan, Kans.

Mr. O. A. Vogel left Washington March 11 after having spent 6 weeks in conferring with project leaders in the Division on cooperative wheat improvement experiments at Pullman, Wash., and in making certain laboratory tests.

PROOF OF PUBLICATIONS

Factors Affecting the Absorption of Selenium from Soils by Plants. Annie M. Hurd-Karrer. Jour. Agr. Research. Galley proof read April 3.

RECENT PUBLICATIONS

Cereal-Rust Parasitism: Its Relation to Water Economy, Yield, and Quality of the Host Plant. Harry B. Humphrey. Trans. Roy. Soc. Canada 3rd Ser., Sect. V, vol. 28: 153-164. 1934.

Effects on Wheat Plants of Ophiobolus graminis at Different Levels in the Soil. Hurley Fellows and C. H. Ficke. Jour. Agr. Research 49(10): 871-880, figs. 1-5. November 15, 1934. (G-932) (Investigations conducted cooperatively by the Division of Cereal Crops and Diseases, Bureau of Plant Industry and the Kansas Agricultural Experiment Station.)

Influence of Smut Infection on Plant Vigor and Other Characters in Smut-Resistant Oat Varieties. V. C. Hubbard and T. R. Stanton. Jour. Agr. Research 49(10): 903-908. November 15, 1934.

Relation of Leaf-Rust Infection to Yield, Growth, and Water Economy of Two Varieties of Wheat. C. O. Johnston and E. C. Miller. Jour. Agr. Research 49(11): 955-981, 7 figs. December 1, 1934. (G-940) (Cooperative investigations between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Differential Response of Corn Varieties to Fertility Levels and to Seasons. G. H. Stringfield and Robert M. Salter. Jour. Agr. Research 49(11): 991-1000, 5 figs. December 1, 1934. (G-943) (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Studies on the Possible Origin of Physiologic Forms of Sphacelotheca sorghi and S. cruenta. H. A. Rodenhiser. Jour. Agr. Research 49(12): 1069-1086, 1 col. pl., 8 figs. December 15, 1934. (G-923)

A Cytological Study of Heterothallism in Puccinia sorghi. Ruth F. Allen. Jour. Agr. Research 49(12): 1047-1068, 7 pls., 2 figs. December 15, 1934. (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Agricultural Experiment Station, University of California.)

Pasturing Winter Wheat in Kansas. A. F. Swanson. Kans. Agr. Expt. Sta. Bull. 271, 30 pp., illus. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Physiologic Specialization in Puccinia coronata avenae. H. C. Murphy. U. S. Dept. Agr. Tech. Bull. 433, 48 pp. January 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

A Portable Rust-Inoculation Chamber. H. B. Humphrey and F. A. Coffman. (Note) Phytopathology 25(2): 279-281, figs. 1-2. February 1935.

Losses from Corn Ear Rots in the United States. Neil E. Stevens and Jessie I. Wood. (Note) Phytopathology 25(2): 281-283, fig. 1. February 1935.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry

Washington

B. P. I. Memo. 824

March 12, 1935

MEMORANDUM TO HEADS OF DIVISIONS

Gentlemen:

I quote below in full a memorandum received from the Director of Personnel dated March 9, 1935:

"Hereafter no appointments to any position in any branch of the Department of Agriculture shall be made where one member of the family is already in the Federal Service (service in the enlisted personnel of the Army, Navy, Marine Corps or Coast Guard will not be considered as in the Federal Service for the purpose of this order). This restriction applies to all temporary, emergency and permanent appointments regardless of whether the position is subject to or excepted from the Civil Service rules and regulations.

"The Attorney General in defining the word "family" as used in the Civil Service Act has stated as follows:

'The family consists of those who live under the same roof with the paterfamilias - those who form * * * his fireside; but when they branch out and become heads of new establishments they cease to be part of the father's family.' (Opinion of July 12, 1907).

"It is requested that appropriate instructions be issued in your bureau to insure compliance with this order.

"By direction of the Secretary:

"W. W. Stockberger
Director of Personnel."

Please note that the foregoing applies to "all temporary, emergency and permanent appointments regardless of whether the position is subject to or excepted from the civil service rules and regulations." This requirement, therefore, applies equally to unskilled labor and all other types of employment.

Will you kindly see that this comes to the attention of all members of your staff, particularly in the field, who have occasion to employ personnel. This bars employment of members of the families of Government employees even as temporary workers under letters of authorization. It is important that this requirement be strictly observed.

Very sincerely,

(Signed) H. E. Allanson

Business Manager of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of the Secretary

Washington

March 22, 1935.

MEMORANDUM NO. 668

Amendment to the Administrative Regulations

Subject: ACCEPTANCE OF GIFTS

The administrative regulations of the Department are hereby amended to include a new paragraph.

726. ACCEPTANCE OF GIFTS. - No employee of the Department shall accept from any outside person, firm, or corporation with whom the employee has or may have official business relations any gift, money, or other thing of value given or loaned with any purpose or intent whatsoever.

(Signed) H. A. Wallace

Secretary:

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

KANSAS

Fort Hays Branch Station, Hays (Cereal Agronomy, A. F. Swanson) (March 15)
Drought conditions prevail over most of the western half of Kansas and are most acute from Hays to the Kansas-Colorado line. Wheat in much of this area has either failed to emerge or has been so weakened by the drought, low temperatures, and by soil erosion (to some extent) that the crop prospect is very small.

The wheat on the cereal project is the poorest in 15 years. Heavy winter-killing from drought and other causes has taken place on the plots located on fallowed land. The earlier the wheat was seeded the greater was the amount of winter-killing.

It is too dry to attempt to sow either oats or barley although the time for seeding is at hand. If good rains should fall seeding will be done as late as April 10 or 15, but experiments have shown that beyond this date the crop is usually injured by June drought or by rust.

Farmers are waiting for rain before seeding barley. Oats are not extensively grown in the region. A large acreage of row crops is expected in this territory with the abandonment of small grains.

Another dust storm reached this vicinity today.

TEXAS

Substation No. 6, Denton (Wheat Improvement, I. M. Atkins) (April 1)

Weather conditions in March were favorable for all crops. The maximum temperature was 89°; the mean temperature for the month was 62.7 F., the highest mean temperature ever recorded for March at this station. Although a minimum temperature of 29° was recorded on March 7, no killing frosts occurred during the month. The precipitation amounted to 2.20 inches and was adequate for all needs of crop plants.

Wheat in this section of northern Texas was nearly all winter-killed in January. A few fields remain but stands are poor. The advanced nursery at Denton was killed with the exception of a few of the most hardy varieties. The varietal test in field plots was thinned from 10 to 90 percent, depending on the variety. A large portion of the head row seedings was lost, including all the nonhardy strains. Information on the winter hardiness of new strains will be of some value and sufficient stand remains on the more hardy strains so that seed can be recovered.

All barley and oat seedlings were destroyed by the freeze and had to be resown. Although there was a rather severe freeze as the spring seedings were emerging, not much damage was done. At this date spring-sown oats and barley are growing nicely, although all will be late in maturing this season.

A seeding of 6 varieties of flax was made on March 22 and a second seeding on April 2.

NORTH DAKOTA

United States Northern Great Plains Field Station, Mandan (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (April 2)

The precipitation in March of 1.13 inches was above average, the first instance of above-average precipitation in any month since June 1934 and only the second instance in the past 15 months. The temperatures averaged about normal but seemed cold after the unseasonably warm weather in February. Very high wind velocities were recorded throughout the month, and there was some severe soil blowing. The average wind velocity for March of 8.2 miles per hour was the highest previously recorded for March. For the 48 hours of March 26 and 27 the wind velocity averaged 17 miles per hour. The maximum temperature was 66° on the 25th, and the minimum - 18° on the 5th.

Mr. V. C. Hubbard returned from Washington, D. C., on March 18 and left for his new headquarters at Woodward, Okla., on March 24.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (April 1)

With the approach of seeding time the surface soil contains slightly more moisture and the subsoil slightly less moisture than a year ago. The precipitation for March was 1.16 inches, or 0.39 inch above normal, but the precipitation for each month for the past year preceding March was below normal every month except in June.

Several dust storms have occurred in the latter part of March but there have been no serious results.

The preparation of seed for field plots and nursery is under way. Field work has been limited to raking and burning Russian-thistles.

MONTANA

Judith Basin Branch Station, Moccasin (Cereal Agronomy, J. L. Sutherland)

The weather in March has been favorable for winter wheat and the soil moisture condition has improved materially. This is especially true of stubble fields where the snow was held from drifting and melted where it fell. Stands of winter wheat have not been thinned out seriously and should start growth in good condition.

Precipitation in the form of snow was well distributed throughout the month and yielded 1.33 inches, while the average for March is 0.81 inch. Very little drifting of the snow occurred and only one day of serious soil blowing was experienced. The maximum temperature was 65° on the 14th and the minimum -18° on the 29th. The mean was 24.2°.

OREGON

Pendleton Field Station, Pendleton (Cereal Agronomy, J. F. Martin) (April 1)

Seeding of small grains at the Station was completed March 15. Nothing has emerged except the sowings made before March 10.

Because of the cold weather, fall-sown grains have made very little growth, although most of the stands are excellent. The only winter-killing reported was where Federation, a spring variety, had been sown in the fall. Much of this acreage had to be resown because the cold weather had weakened the plants.

Moisture conditions are now fairly good, but warmer temperatures are needed. The total precipitation for March was 0.96 inch. The mean maximum temperature was 51° and the mean minimum 28.7°.

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens) (April 1)

The winter of 1934-35 was mild in the Columbia Basin of Oregon, except for one short cold period from Jan. 18 to 21. At Moro the lowest temperature was -13° on Jan. 20. Little injury resulted to any of the fall-sown wheats on the Station, although there was very little snow cover during the cold weather.

The precipitation at Moro for the 7-month period, Sept. 1, 1934, to March 31, 1935, was 7.64 inches, or about 1 inch less than the normal for that period.

There is a deficiency of subsoil moisture in most of the soils of the Columbia River Basin area in Oregon and normal yields are not likely to be obtained unless the precipitation for the next few months is much above normal.

Spring work on the Station has been in progress since early March and all seeding of small grains has been completed. Temperatures in March were too low for much plant growth. On 26 days the minimum temperatures were below freezing. The mean temperature for the month was 39° and the total precipitation was 0.45 inch.

A severe wind on March 24, which fortunately lasted only a few hours, caused severe soil blowing in many localities and necessitated the resowing of some spring grains in Sherman County.

UTAH

Agricultural Experiment Station, Logan (Cereal Agronomy, R. W. Woodward) (April 2)

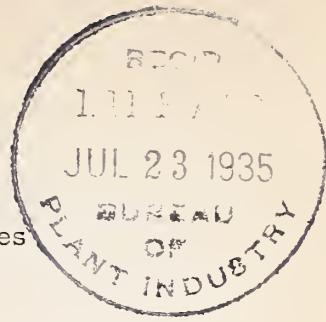
The weather conditions in March were unfavorable for out-door work. There were many cold days and 9 snow storms. A total of 1.54 inches of precipitation fell at Logan while the State in general received a good supply. Stands of winter wheat in the nursery and in most commercial fields are excellent. In general, conditions are much more favorable than a year ago.

All of the outlying cereal nurseries have been seeded, with the exception of one in Boxelder County. Some miscellaneous barley material was seeded in March. Seeding of the yield nursery was begun at Logan on April 1 and will be finished by April 2.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27 April 25, 1935 No. 5
Personnel (April 11 - 25) and Field Station (April 1-15)

PERSONNEL ITEMS

Mr. C. O. Johnston was authorized to attend a local section meeting of millers and cereal chemists at Manhattan, Kans., on April 13 to make an informal talk on the effect of rust infection on the yield and quality of wheat.

RECENT PUBLICATIONS

Histological Studies of Rice Leaves Infected with *Helminthosporium oryzae*. E. C. Tullis. Jour. Agr. Research 50(1): 81-90, figs. 1-6. January 1, 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas agricultural experiment stations.)

Wojnowicia graminis As a Very Weak, Secondary Parasite of Winter Cereal Crops. Roderick Sprague. Phytopathology 25(4): 405-415, figs. 1-2. April 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations with field headquarters at Corvallis, Oreg.)

Ascochyta boltshauseri on Beans in Oregon. Roderick Sprague. Phytopathology 25(4): 416-419. April 1935.

○○○

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Plant Industry

Washington

B. P. I. Memo. 833

April 15, 1935

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Dr. H. A. Edson is designated as Principal Pathologist in charge of the Division of Mycology and Disease Survey vice Dr. C. L. Shear, who retired on March 31. Mr. John A. Stevenson will be in charge of the section of Mycological Collections in the Division of Mycology and Disease Survey.

Sincerely yours,

F. D. Richey
Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Plant Industry

Washington

B. P. I. Memo. 831

April 15, 1935

MEMORANDUM TO HEADS OF DIVISIONS

Gentlemen:

I quote below in full a memorandum dated March 21, 1935, from Dr. W. W. Stockberger, Director of Personnel:

It is the policy of the Department that all non-Civil Service workers should fully observe the restrictions on partisan political activity which apply to employees with Civil Service status.

Competitive employees, while retaining the right to vote and to express privately their opinions on political subjects, are forbidden to take an active part in political management or in political campaigns. This also applies to temporary employees, employees on leave of absence with or without pay, substitutes, and laborers. Political activity in city, county, state, or national elections, whether primary or regular, or in behalf of any party or candidate, or any measure to be voted upon, is prohibited.

You are requested to bring this matter to the attention of all of your employees to whom it may apply.

Will you kindly see that this memorandum is called to the attention of all employees in your Division, Washington and field.

Sincerely yours,

F. D. Richey
Chief of Bureau

○ ○ O ○ ○

B. P. I. Memo 836

April 18, 1935

MEMORANDUM TO HEADS OF DIVISIONS

Gentlemen:

A number of cases have come to my attention where individuals employed on various relief activities have also been employed for a portion of their time under letter of authorization by this Bureau. From an administrative standpoint, passing over the question of whether or not such employment might be legal, I consider it highly undesirable. Will you kindly see that members of your staff who have occasion to employ workers do not employ members who are simultaneously receiving pay from relief agencies. It is the purpose of the relief agencies, as I understand it, to assist individuals who cannot secure other employment and at the same time encourage securing other employment. To be employed by this Bureau, an individual should sever all connections which bring him an income from relief activities.

Sincerely yours,

F. D. Richey
Chief of Bureau.

○ ○ O ○ ○

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)(April 23)

Weather conditions in March were unusually favorable for field work. The maximum temperature was 85° and 80° or above on 12 days. The minimum temperature was 33° and 50° or less on 9 days.

The total precipitation of 4.32 inches occurred on 8 days in the form of light showers until the 31st, when more than 1 inch was recorded. The 25-year average precipitation for March is 4.02 inches.

Because of the good weather farmers sowed more rice in March than usual.

Work on the Station is farther advanced than ordinarily at this season of the year. The date-of-seeding plots of corn and rice were sown as planned and are up to good stands.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair)(April 16)

There have been extensive seed-bed preparations for seeding rice, but no commercial fields have been sown at this time. If it doesn't rain for the next few days a few fields will be sown this week. The first-date plot in the date-of-seeding experiment was sown today.

The winter oats made a nice growth early in the spring, but the cold weather of last week checked their growth some. The crop still seems to be a few days earlier than normal. Present indications are that crown rust will be bad this year. It is developing rapidly at this time, which is about 10 days earlier than usual.

Winter oats in this section survived the winter very well. The temperatures this year have been moderate. There was one period of cold weather in January when the minimum temperature was 10.5° F. This followed after a period of warm weather and killed some of the more tender varieties, but did not cause serious damage to the hardy varieties. There have been 20.44 inches of rainfall since January 1, which is about 3.50 inches above normal.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)(April 15)

Temperatures during the first half of April were somewhat below normal. The minimum was 33° F., and a light frost was recorded on the 13th. No precipitation of agricultural importance has been received during the month.

Small grains are suffering from lack of moisture for spring growth. Dry, windy weather with frequent dust storms has prevailed. As no surplus or reserve moisture was available this condition has been unfavorable for small grains. In many instances plants have never established their secondary roots. As a result of the dry weather no rust of importance has so far appeared even on winter wheat. None of the small grains have started heading and will be late because most of them have been resown.

The second seeding of the flax nursery was made about the first of the month, but only a scattered stand has emerged.

The writer attended the Hard Red Winter Wheat Conference at Lincoln, Nebr., on April 11 and 12.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal
Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (April 17)

Temperatures were unseasonably low during the first half of April. Precipitation, mostly in the form of snow, amounted to 0.72 inch. Also, intermittent rain and sleet on April 16 amounted to 0.21 inch. There was still frost in the ground several inches below the surface up to April 10 and the ground froze hard again April 14. High winds laden with dust blown from elsewhere have been frequent, although favorable moisture conditions have prevented injurious soil blowing in the immediate vicinity.

Land for the varietal plots of wheat, oats, and barley has been prepared and staked out ready for seeding. Land for the wheat nursery has also been prepared except for marking. No seeding has yet been done on the Station.

The maximum temperature was 71° on April 13 and the minimum 13° on April 1.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat
Improvement, G. S. Smith) (April 15)

Seed for the cereal project is ready for planting at Fargo and Langdon, but operations are being delayed by the weather. The precipitation in March and April has been frequent though not heavy and is sufficient to germinate and start the crop. Temperatures around 10 above zero were recorded last night after blizzardy weather on Sunday, and field operations will be delayed accordingly.

The cereal nursery at Fargo will amount to something over 2.5 acres and the plantings at Langdon will occupy little more than an acre.

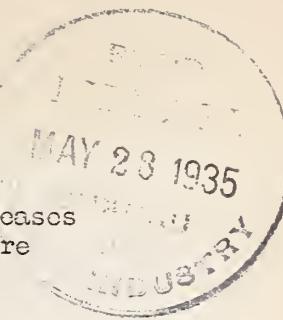
Precipitation to date in 1935 is approximately normal at Fargo, and a little above normal for April. The subsoil of course is still dry.

○ ○ ○ ○

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27 May 10, 1935
Personnel (April 26-May 10) and Field Station (April 16-30)

No. 6

PERSONNEL ITEMS

Mr. C. E. Chambliss returned May 3 from a 2 weeks trip in Florida, Georgia, and South Carolina where he conferred with officials of the State agricultural experiment stations and others on the testing of Patna rice and the introduction of Zizania and perennial rices.

Mr. H. H. McKinney recently spent a week in Illinois and Indiana to inspect wheat mosaic experiments and consult with officials of State agricultural experiment stations.

Dr. L. F. Randolph came from Ithaca, N. Y., on April 29 to confer with members of the Division staff and others and to complete a manuscript on the developmental morphology of the caryopsis of maize. He returned to Ithaca on May 10.

RECENT PUBLICATIONS

Seed Situation in the Great Plains. S. C. Salmon. Seed World 37(1): 7-9. January 4, 1935.

Effect of Parboiling Rough Rice on Milling Quality. Jonkin W. Jones and J. W. Taylor. U. S. Dept. Agr. Circ. 340, 15 pp., figs. 1-6. February 1935. (Received April 29.)

Variation and Correlation in Grain Yield among 1,500 Wheat Nursery Plots. Gustav A. Wicbel. Jour. Agr. Research 50(4): 331-357, figs. 1-7. February 15, 1935. (G-949). (Received May 6) (This paper is based on cooperative investigations between the Division of Cereal Crops and Diseases and the Idaho and California agricultural experiment stations.)

Yields of Barley in the United States and Canada 1927-31. H. V. Harlan, P. Russell Cowan, and Lucille Reinbach. U. S. Dept. Agr. Tech. Bull. 446, 80 pp. March 1935.

The Lateral Flowers of Two-Rowed Barley. Harry V. Harlan and Mary L. Martini. Jour. Heredity 26(3): 109-113, figs. 4-5. March 1935. (Received April 27.) (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)(May 10)

Weather conditions were ideal for field work until the 20th, when there was a very heavy rain. This delayed soil preparation and seeding until the latter part of the month, when work was again interrupted by a heavy shower on the 27th.

The maximum temperature in April was 85° and 80° or above on 15 days. The minimum temperature was 44° and 50° or less on 3 days.

The total precipitation of 3.79 inches fell on 7 days. The 25-year average precipitation for April is 3.64.

The presence of dust in the air was noticeable in the early morning of April 11. It increased in quantity as the day advanced, and by 4 p. m. trees could not be seen at a distance of 1 mile. There were a few clouds in the early morning. The remainder of the day was clear, and the sun was visible as a metallic disc. Most of the dust had disappeared from the air by the morning of April 12. A coating of brownish dust was deposited on all objects.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemuss)(May 2)

Winter wheat varieties survived the winter in good condition at the Southeast Experiment Station, Waseca, and winter wheat in southern Minnesota is in excellent condition.

The weather during the winter was mild. The mean temperatures were 6° to 9° above normal in November, December, and February and slightly below normal in September, October, January, March, and April. There was about a week of extremely cold weather with the minimum temperature of -31° recorded on January 23. The precipitation recorded for the period from September 1 to April 30 was 19.71 inches as compared with a normal of 12.92 inches or an excess of 6.79 inches.

The weather in April has been cold. The maximum temperature for the month was 76° on the 25th, and the minimum 18° on the 15th. The precipitation was 2.32 inches, as compared with the normal of 2.23 inches.

Spring field work has been delayed because of cold temperatures and frequent rains. Seeding of the spring cereals started on April 19 and has been completed with the exception of a part of the barley and wheat rust nursery. The spring wheat nursery plots have emerged.

Yesterday, May 1, there was a severe snow storm and the ground is covered with about 2 to 3 inches of snow. The minimum temperature last night was 33°.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)(May 1)

Weather conditions in April were favorable for the growth of small grain. The first half of the month was characterized by strong winds, duststorms, and absence of rainfall so that grain made rather slow progress and in some instances was damaged somewhat by lack of moisture. During the last half of the month there was an abundance of moisture, and temperatures favored the rapid growth of grain. Rainfall for the month totaled 3.54 inches, which is just slightly below normal. The temperatures were almost exactly normal, with a maximum of 92° and a minimum of 33°.

At the close of the month all small grains are in excellent condition and spring oats and barley give promise of high yields. Wheat that survived the freeze in February is making satisfactory progress although it is later than normal because of thin stands. Early Blackhull wheat started heading on April 28 and many varieties of spring oats and barley are heading. Leaf rust of wheat has spread rapidly in recent weeks and is injuring the more susceptible varieties.

The writer inspected wheat experiments in the Panhandle area from April 17 to 20. The varietal tests at Amarillo, Plainview, and Spearman were still alive but in a critical condition. The Amarillo nursery probably will have to be abandoned because of poor stands. All experimental grain in that section will be a failure unless rains occur soon. Wheat on farms in the Panhandle is all in a critical condition with little prospect of a crop. Soil blowing in that area, although serious, is not so bad as in 1933 and has been exaggerated by newspapers.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger)(May 1)

So far 1935 seems to be a droughty extension of previous years. There has been little if any local soil blowing here this spring, but considerable dust has been blown in from regions farther west. April has practically finished the prospects for a wheat crop in this part of the state. Growers who pastured their wheat during the winter and early spring have realized some income from their wheat and are that much ahead.

The maximum temperature for April was 90° on the 14th, and the minimum 30° on the 3rd. The precipitation for April was 0.01 inch. The precipitation for the period from January 1 to April 30 is 2.56 inches, which was distributed in such small quantities as to be of little benefit.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(May 1)

The cereal grains on the station and on surrounding farms have been severely damaged by lack of rain. Varietal plots on cropped land will be practically a total failure except for Kawvale and a Turkey Selection, C. I. No. 10016, in one series. The plots on fallow land are fired badly and are spotted but will still make some seed if rain is received soon.

In the rate-and-date of seeding experiment in which Cheyenne wheat was sown at four different dates at two week intervals only the November 15 (latest seeding) is free of firing. Normally the October 15 seeding shows the most optimum growth.

Approximately 1/3 of the nursery is still green and showing vigorous growth. Spring sown wheat, oats and barley varieties are three to eight inches tall and are not showing signs of drought to date.

The first 'first heading' notes were recorded on April 22.

Leaf rust was first noted on April 19.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis)(May 1)

A heavy rain and snowstorm on April 22 and 23 resulted in a total precipitation of 2.64 inches. This storm extended over all of northeastern Colorado and as a result the crop prospects in this region are very bright except for winter wheat. The maximum temperature for April was 75° on April 13 and the minimum 16° on the 1st. The precipitation was 3.25 inches. The normal precipitation for April is 2.18 inches. The precipitation since January 1 has amounted to 4.71 inches, as compared to a normal precipitation of 3.68 inches.

Winter wheat is almost a complete failure on the Station. The extremely dry fall and winter have injured the wheat. Rabbits have destroyed much of the wheat in spite of efforts to keep them killed off. The one exception is the winter wheat varietal experiment, where prospects are good for a crop on fallow.

The seeding of spring wheat, oats, and barley has been completed. All plots have emerged to excellent stands. Prospects for a crop are good, as the soil has above average stored moisture. The first seeding of the date-of-seeding experiment with corn was made on April 20 but has not emerged to date.

Winds during the latter part of March were strong and caused some soil blowing but since April 1 there have been only a few dust storms. Very few fields in this region were damaged by wind and these were only slightly damaged.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, C. A. Suneson)(April 30)

Heavy rains have fallen in all but the southern and southeastern counties in Nebraska but they came too late to save experimental winter wheat at Alliance and Valentine. Seeding of spring grain has been materially delayed in those sections. At North Platte prospects for winter wheat are good.

At Lincoln, wheat is showing greater drought injury than at this time last year. The precipitation in April was 1.32 inches, or 1.09 inches below normal. The accumulated deficiency since July 1 is 3.94 inches as compared to only 0.18 inch for the same period a year ago. Manured pots of wheat are burned severely.

Current observations at this stage of growth, showing that winter wheat burns even though the subsoil is moist, and that hard wheats burn worse than soft wheats are of interest since they confirm 1934 observations. Heading will probably start in 12 days. Unusual varietal differences in tillering and head production are suggested. Adult chinch bugs are not nearly so numerous as in 1934 or even 1933. The writer believes that there is sufficient subsoil moisture to mature both nursery and plots, since the land was virtually uncropped last year, but he is concerned about the high fertility and lodging hazard.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(May 1)

The total precipitation for April was 3.09 inches, the heaviest recorded in April for over 40 years. Rainfall was recorded on 9 of the 15 days of the last half of April and totaled 2.37 inches. Most of the precipitation was slow, gentle rain absorbed immediately with little run-off. Rainfall was nearly continuous during the past 24 hours. Precipitation between 8 a. m. and 1 p. m. today was 0.45 inch. Soil moisture conditions, although exceptionally favorable for germination of seed, have made field work difficult. The wheat, oats, and barley varietal plots were sown April 19 and the plants are just emerging. The wheat nursery in 3-row plots in triplicate, comprising 828 rod rows, was sown April 27. The triple and single row nurseries, comprising 1,128 rod rows, were sown April 29.

The winter wheat nursery apparently has winter-killed completely.

Russian thistles and other weeds are emerging, which should afford favorable conditions for elimination of weeds by tillage before seeding flax.

The maximum temperature during the last of April was 72° on April 21 and the minimum 30° on April 29.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(May 2)

The seeding of replicated varietal field plots of wheat, oats, and barley was completed on April 23 and the seeding of replicated rod rows of these same crops was completed on April 26. The uniform bunt nursery and hybrid bunt nursery were sown April 12 and 13 and the plants began to emerge on April 25.

Seeding has been suspended for nearly a week because of wet weather. Rain and snow on April 27 totaled 1.37 inches of precipitation and rain this month amounts to 0.40 inch. The April precipitation was 2.29 inches, or about 1 inch above normal. Moisture conditions are thus more promising than at any time since early last June.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(May 2)

At this late date very little seeding has yet been done at the College Station. Unusual slowness of the frost in coming out and frequent showers have prevented the heavy soil from drying sufficiently for working, except in the lighter spots. The cereal nursery is on higher land, and fortunately it was possible to get in three days of seeding, enough to plant all the yield and bunt experiments with common and durum wheat and oats. These experiments should be in good condition when the weather warms up. They were sown in ground very wet below the first inch, and today's heavy wet snow will pack the soil above and should insure uniform germination. This snow will prevent more seeding at Fargo till at least May 7. The plan now is to go to Langdon and put in the nursery there before seeding the hybrid and inheritance material and cooperative experiments at Fargo.

The precipitation at Fargo is now above normal for the year, and it is believed that the moisture is beginning to penetrate the subsoil. The subsoil at Langdon is drier than at Fargo, but the top soil is in ideal condition to give the crop a good start and prevent the dust storms that were so severe a year ago.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (May 1)

The seeding of field and nursery plots was started April 23, which is a few days later than the average over a period of years. Spring work has progressed rapidly regardless of low temperatures, intermittent showers, and snow flurries, and most of the seeding is finished.

The month of April was unfavorable for plant growth because of low temperatures, and perennial crops have made very little growth despite the presence of ample soil moisture.

Temperatures of 32° or lower were recorded on 24 days of the month and the mean temperature was 33° . The minimum temperature was -15° on the 1st and the maximum 70° on the 20th. The precipitation, which was received mostly in the form of snow, totaled 0.48 inch.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin)(May 1)

Warm weather the last half of April caused rapid growth of fall-sown crops, but spring grains are still much behind their usual stage of growth at this season of the year. Rain amounting to 1.8 inches fell on April 8 and put the soil in excellent condition for cultivation. The total rainfall for the month was 2.14 inches.

Spring plowing in this section was finished some time ago except by those farmers who handle an unusually large acreage. The prospects are good for satisfactory yields of winter wheat.

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat, Roderick Sprague)(April 24)

Weather conditions at Corvallis have been extremely varied this spring but in general the season is later than usual. Conditions were favorable for the development of winter cereals in the bunt nursery, which is in good condition at this date. The spring bunt nurseries (seed treatment) were seeded at Pendleton on March 14 and those 14 miles south of Corvallis on March 28. Cold weather at first retarded these seedlings but recent warm weather has permitted the grain to recover.

Winter oats and winter wheat survived the heavy winter rains in the Alsea Valley plot in the best conditions yet experienced in this plot, but the spelt did not do so well. All of the grain seeded in late February encountered heavy cold rains and snow flurries and are in poor condition in this plot.

The winter wheat and winter barley in the cercosporella foot rot plot on High Prairie in Klickitat County, Wash., were in fair condition in late February in spite of the poor start made last fall. Septoria leaf spot was found on almost every leaf of wheat in the fields on High Prairie. Calcium cyanamide experimental trials were started on known foot rot infested portions of a field near the plots.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (May 1)

The small grain nursery was seeded during the first two days of April. Rains followed, making it impossible to seed the larger plots until April 13. Genetic and multiplication material has been seeded at intervals between storms until it is now all completed. Emergence of the early seeded grains has been very slow taking as long as 20 days from time of seeding. Rains and snows totaling 2.78 inches have been recorded on 11 days; there was an additional precipitation of 0.42 inch last night.

The total precipitation since November 1, 1934, is 9.29 inches as compared to 9.92 for a 14-year mean. There is more stored moisture on the watersheds of the State than last season and there is a good supply in the soil.

Winter wheat emerged early last fall for the first time in three years. There was little or no winter-killing and an excellent spring growth. Both the winter wheat nursery and commercial fields in northern Utah have a heavy growth of wheat from 5 to 10 inches high. Crops other than grain and grasses have made little growth, while a large part of the commercial seeding has yet to be done.

The mean temperature for the month was 74°, which is near the average, although there have been several frosts and a minimum of 21° on the 29th.

CALIFORNIA

BIGGS RICE FIELD STATION. BIGGS (Rice Agronomy, L. L. Davis)(April 30)

Weather conditions in California this spring are less favorable for the seeding of rice than in any season since 1913, when the rice industry was started in California. The total rainfall since January 1 is 17.24 inches, or 1.84 inches less than the average annual rainfall since 1913.

No field work has been done on the Station so far, whereas in former years seeding was nearly completed by this date. Less than 5 percent of the rice in California has been seeded; normally about 85 percent of the crop is seeded by May 1.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)



Vol. 27

May 25, 1935

No. 7

Personnel (May 11 - 25) and Field Station (May 1 - 15)

PERSONNEL ITEMS

Mr. B. B. Bayles left Washington May 16 to study varieties and hybrids of wheat in cooperative breeding nurseries in Arizona, California, Oregon, Washington, Idaho, and Nevada and confer with officials of the State agricultural experiment stations and others interested in cooperative wheat experiments and to observe wheat conditions in general.

Mr. F. A. Coffman left May 19 for an official trip in the interests of cooperative oat investigations. His itinerary will include stops in Virginia, Tennessee, Arkansas, Missouri, Texas, Arizona, California, Oregon, Washington, Idaho, Utah, Colorado, Wyoming, Kansas, Nebraska, and Iowa. He will make observations on cooperative oat experiments and collect normal and diseased plant material for laboratory study and confer with agronomists at State and Federal agricultural experiment stations relative to future breeding and other experiments with oats.

Mr. A. C. Dillman returned to Washington May 15 on completion of a trip in Arizona and California to inspect flax plantings and confer with Division employees and officials of the State agricultural experiment stations on cooperative flax experiments. Mr. Dillman had been engaged for several months in work for the Seed Stocks Committee in Minneapolis prior to leaving for the far West.

Mr. C. C. Fifield has been authorized to attend the meetings of the American Association of Cereal Chemists to be held at Denver, Colo., from June 4 to 8 and to present an abstract of a paper entitled "White Wheat Variety Studies," by C. C. Fifield, S. R. Snider, Harland Stevens, and Ray Weaver.

Mr. Fifield also will attend the meeting of the Western Branch of the American Society of Agronomy to be held at Pendleton, Oreg., from June 18 to 20, where he will present an abstract of a paper entitled "Wheat Meal 'Time' Test Studies," by C. C. Fifield, I. M. Atkins, and O. A. Vogel. He will discuss results obtained in the cooperative white wheat program and make plans for future study. He will also confer with representatives of commercial mills and bakeries with reference to the quality of wheat produced in Washington and Oregon.

Dr. A. G. Johnson left May 27 on a trip of two weeks in Kansas to take notes on cooperative flag smut experiments and to confer with officials of the Kansas Agricultural Experiment Station on cooperative cereal disease research.

Mr. R. W. Leukel recently spent a few days at Statesville, N. C., and vicinity to record data on smut and infection of barley and oats sown in the fall of 1934 and to arrange for further experiments.

Miss Mary L. Martini left Washington on May 24 for Aberdeen, Idaho, where she will take notes and compile data on cooperative barley experiments.

Dr. K. S. Quisenberry left on May 26 on his annual trip to points in Texas, Oklahoma, New Mexico, Kansas, Nebraska, Colorado, and Illinois to visit and inspect cooperative wheat experiments at the State agricultural experiment stations and Federal field stations and to observe crop conditions in general.

Dr. H. A. Rodenhiser left on May 3 for Arizona, California, Oregon, Idaho, Utah, and Montana, where he will inspect and take notes on cooperative bunt or stinking smut nurseries and make collections for laboratory study. He will also confer with officials of State agricultural experiment stations and Federal field stations on future cooperative experiments.

Dr. S. C. Salmon returned to Washington on May 20 from an inspection of cooperative wheat experiments in North Dakota, Wisconsin, Michigan, Minnesota, Texas, Missouri, and Georgia, having completed his 10 and one-half months of official duty on the Seed Stocks Committee with headquarters at Minneapolis.

Dr. V. F. Tapke spent the second week in May taking notes on the cooperative barley covered smut experiments at Statesville, N. C. He reports having obtained some interesting and satisfactory results in his artificial inoculation experiments with covered smut of barley.

Mr. J. W. Taylor recently spent several days in Virginia, South Carolina and Georgia, inspecting cooperative cereal experiments and conferring with officials of the State agricultural experiment stations and others.

Dr. E. C. Tullis came to Washington from Fayetteville, Ark., early in May and spent several days in conference with pathologists and others of the Division concerning cooperative rice disease investigations.

RECENT PUBLICATIONS

Inheritance of Stem-Rust Reaction in Wheat, II. J. Allen Clark and Glenn S. Smith. Jour. Amer. Soc. Agron. 27(5): 400-407. May 1935. (Cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station at the Langdon Substation.)

NOTICE OF MEETING

The Western Branch of The American Society of Agronomy will meet at Pendleton, Oreg., from June 18 to 20. In connection with those meetings there will be held a conference of workers interested in the coordinated wheat improvement program in the western region.

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

DIVISION OF CEREAL CROPS AND DISEASES

Calendar Year 1934

- 0 -

In the calendar year 1934, 96 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural organizations, in private journals, or as mimeographed unnumbered publications of the Division. In the same year 104 manuscripts were submitted for publication. There remain as of December 31, 1934, 43 manuscripts submitted in 1934 and 8 submitted in 1933.

GENERAL OR MISCELLANEOUS

Cotter, Ralph U. White Pycnia and Accia of *Puccinia graminis*. (Phytopath. Note) *Phytopathology* 24(10): 1121-1122. October 1934. ("Cooperative investigation between the Minnesota Agricultural Experiment Station and the Project of Barberry Eradication, Division of Plant Disease Eradication, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture. The investigation was undertaken before the Project of Barberry Eradication was separated from the Bureau of Plant Industry.")

Franke, Kurt W., Rice, T. D., Johnson, A. G., and Schoening, H. W. Report on a Preliminary Field Survey of the So-called "Alkali Disease" of Livestock. U. S. Dept. Agr. Circ. 320, 10 pp., 7 figs. August 1934.

Humphrey, Harry B. Cereal-Rust Parasitism: Its Relation to Water Economy, Yield, and Quality of the Host Plant. Roy. Soc. Canada, Trans. Ser. 3, Sect. V, vol. 28: 153-164. 1934.

Report on the Cooperative Uniform Cereal Rust Differentiating Nurseries for the Year 1933. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 32 pp. Dec. 19, 1934. [Mimeographed.]

Johnson, A. G., Haskell, R. J., and Leukel, R. W. Treat Seed Grain. U. S. Dept. Agr. Misc. Pub. 219, 4 pp. [Unnumbered.] December 1934.

Martin, John H. Iarovization in Field Practice. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 13 pp. Jan. 19, 1934. [Mimeographed.]

The Practical Application of Iarovization. (Note) Jour. Amer. Soc. Agron. 26(3): 251. March 1934.

Parker, John H. The Romance of Plant Breeding. Kans. State Bd. Agr. [Quart.] Rept. 53(209): 119-130. March 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kans. Agricultural Experiment Station.)

Randolph, L. F. Chromosome Numbers in Native American and Introduced Species and Cultivated Varieties of Iris. Bull. Amer. Iris Soc. 52: 61-66. July 1934.

Sprague, Roderick. The Relative Importance of *Cercosporaella herpotrichoides* and *Leptosphaeria herpotrichoides* as Parasites of Winter Cereals. (Note) *Phytopathology* 24(2): 167-168. February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Sprague, Roderick. Keys to Aid in the Identification of the More Important Foot Rots of Winter Grains in the Pacific Northwest. Oreg. Agr. Expt. Sta. Circ. Inform. No. 99, 4 pp. May 1934. [Mimeographed] (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

The Association of *Cercosporaella herpotrichoides* with the *Festuca* Consociation. *Phytopathology* 24(6): 669-676, figs. 1-2. June 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Rust Diseases of Grain Crops in Oregon in 1933-34. U. S. Dept. Agr., Bur. Plant Indus. Plant Disease Rept. 18 (7): 89. July 1, 1934.

Cercosporaella Foot Rot of Winter Grains in the Pacific Northwest. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 10 pp. August 17, 1934. [Mimeographed]

and Fellows, Hurley. *Cercosporaella* Foot Rot of Winter Cereals. U. S. Dept. Agr. Tech. Bull. 428, 24 pp., 6 pls., 3 figs. September 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon, Washington, and Idaho agricultural experiment stations.)

Stakman, E. C., Levine, M. N., Cotter, Ralph U., and Hines, Lee. Relation of Barberry to the Origin and Persistence of Physiologic Forms of *Puccinia graminis*. *Jour. Agr. Research* 48(11): 953-969, figs. 1-3. June 1, 1934. (Cooperative investigations of the Division of Barberry Eradication and the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Stevens, Neil E. Mycological Letters from M. A. Curtis 1856-1861. *Mycologia* 26(5): 441-448. October 1934.

Taylor, J. W. Irregularities in the Inheritance of the Hairy-Neck Character Transposed from *Secale* to *Triticum*. *Jour. Agr. Research* 48(7): 603-617, figs. 1-3. April 1, 1934. (G-893)

Vogel, O. A., and Johnson, Arthur J. A New Type of Nursery Thresher. (Note) *Jour. Amer. Soc. Agron.* 26(7): 629-630, fig. 1. July 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Bureau of Agricultural Engineering.)

BARLEY

Harlan, H. V. Growing Barley for Malt and Feed. U. S. Dept. Agr. Farmers' Bull. 1732, 14 pp., 1 fig. May 1934.

Leukel, R. W., and Tapke, V. F. Barley Diseases Controlled by Seed Treatment. U. S. Dept. Agr. Misc. Pub. 199, 4 pp., illus. July 1934.

Wiebe, G. A. Complementary Factors in Barley Giving a Lethal Progeny. *Jour. Heredity* 25(7): 273-274, fig. 5. July 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

CORN

Allen, R. F. Heterothallism in Corn Rust. (Abstract) *Phytopathology* 24(10): 1142-1143. October 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Brunson, Arthur M., and Latshaw, W. L. Effect of Failure of Pollination on Composition of Corn Plants. *Jour. Agr. Research* 49(1): 45-53. July 1, 1934. (G-901) (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Elliott, Charlotte. The Present Status of Bacterial Wilt of Sweet Corn. U. S. Dept. Agr. Ext. Path. Ser. No. 11: 9-11. February 1934. [Mimeo-graphed.]

Elliott, Charlotte, and Poos, F. W. Overwintering of Aplanobacter stewarti. Science (n. s.) 80 (2074): 289-290. Sept. 28, 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Bureau of Entomology and Plant Quarantine.)

Holbert, J. R. Plant Breeders Make Progress in Developing Disease-Resistant Corn. U. S. Dept. Agr. Yearbook 1934: 285-287, fig. 78. 1934.

Jenkins, Merle T. Methods of Estimating the Performance of Double Crosses in Corn. Jour. Amer. Soc. Agron. 26(3): 199-204, figs. 1-4. March 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Linkage Relations of the A₂ a₂ Factor Pair in Maize. Jour. Amer. Soc. Agron. 26(9): 719-720. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

A Comparison of the Surface, Furrow, and Listed Methods of Planting Corn. Jour. Amer. Soc. Agron. 26(9): 734-737. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Melchers, Leo E., and Brunson, Arthur M. Effect of Chemical Treatments of Seed Corn on Stand and Yield in Kansas. Jour. Amer. Soc. Agron. 26(11): 909-917. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Richey, Frederick D., Stringfield, G. H., and Sprague, George F. The Loss in Yield That May Be Expected From Planting Second Generation Double-Crossed Seed Corn. Jour. Amer. Soc. Agron. 26(3): 196-199. March 1934.

Robinson, Joe L., and Bryan, A. A. Iowa Corn Yield Test. Results for 1933. Iowa Corn and Small Grain Growers' Assoc. Report No. 14, 29 pp., illus. February 1934. (Cooperation between the Iowa Corn and Small Grain Growers' Association and the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

St. John, R. R. A Comparison of Reciprocal Top Crosses in Corn. Jour. Amer. Soc. Agron. 26(9): 721-724. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Smith, Glenn M., and Trost, John F. Diplodia Ear Rot in Inbred and Hybrid Strains of Sweet Corn. Phytopathology 24(2): 151-157, figs. 1-2, February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Sprague, George F. Experiments on Larovizing Corn. Jour. Agr. Research 48(12): 1113-1120, fig. 1. June 15, 1934. (G-914)

Stringfield, G. H. Corn Hybrid and Variety Experiments. Ohio Agr. Expt. Sta. 52nd Ann. Rept.: 26-27. [1934] (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

and Salter, Robert M. Differential Response of Corn Varieties to Fertility Levels and to Seasons. Jour. Agr. Research 49(11): 991-1000, 5 figs. December 1, 1934. (G-943). (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

FLAX

Allen, Ruth F. Heterothallism in Flax Rust. (Abstract) *Phytopathology* 24(10): 1143. October 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

A Cytological Study of Heterothallism in Flax Rust. *Jour. Agr. Research* 49(9): 765-791, 13 pls. November 1, 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Boyle, Lytton W. Histological Characters of Flax Roots in Relation to Resistance to Wilt and Root Rot. *U. S. Dept. Agr. Tech. Bull.* 458, 19 pp., pls. 1-4. December 1934. (Cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station and the University of Wisconsin.)

GRAIN SORGHUM AND BROOMCORN

Allen, Ruth F. A Cytological Study of Heterothallism in *Puccinia sorghi*. *Jour. Agr. Research* 49(12): 1047-1068, 7 pls., 2 figs. December 15, 1934. (G-942). (Cooperation between the Division of Cereal Crops and Diseases and the agricultural experiment station, University of California.)

Martin, John H. The Use of the Greenhouse in Sorghum Breeding. *Jour. Heredity* 25(6): 251-254, figs. 12-13. June 1934.

Rodenhiser, H. A. Studies on the Possible Origin of Physiologic Forms of *Sphacelotheca sorghi* and *S. cruenta*. *Jour. Agr. Research* 49(12): 1069-1086, 1 col. pl., 8 figs. December 15, 1934. (G-923).

Sieglinger, J. B., Swanson, A. F., and Martin, J. H. Inheritance of Awl Development in Sorghums. *Jour. Agr. Research* 49(7): 663-668, fig. 1. Oct. 1, 1934. (G-929).

Swanson, A. F., and Laude, H. H. Varieties of Sorghum in Kansas. *Kans. Agr. Expt. Sta. Bull.* 266, 51 pp., 17 figs. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

OATS

Coffman, F. A., and Davis, L. L. Heterosis or Hybrid Vigor in Oats. *Jour. Amer. Soc. Agron.* 26(4): 318-327, figs. 1-3. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Hubbard, V. C., and Stanton, T. R. Influence of Smut Infection on Plant Vigor and Other Characters in Smut-Resistant Oat Varieties. *Jour. Agr. Research* 49(10): 903-908. November 15, 1934. (G-938).

Leukel, R. W., and Stanton, T. R. Effect of Seed Treatments on Yield of Oats. *Jour. Amer. Soc. Agron.* 26(10): [851]-857. October 1934. (Cooperation between the Division of Cereal Crops and Diseases and the agricultural experiment stations of Illinois, Iowa, Wisconsin, Minnesota, Indiana, and New York.)

Sprague, Roderick. A Physiologic Form of *Septoria tritici* on Oats. *Phytopathology* 24(2): 133-143, figs. 1-2. February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

Stanton, T. R., Coffman, F. A., and Tapke, V. F. Field Studies on Resistance of Hybrid Selections of Oats to Covered and Loose Smuts. *U. S. Dept. Agr. Tech. Bull.* 422, 10 pp. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa, North Dakota, Montana, Idaho, and Oregon agricultural experiment stations.)

Stanton, T. R., Murphy, H. C., Coffman, F. A., and Humphrey, H. B. Development of Oats Resistant to the Smuts and Rusts. (Note) *Phytopathology* 24(2): 165-167. February 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Reed, George M., and Coffman, F. A. Inheritance of Resistance to Loose Smut and Covered Smut in Some Oat Hybrids. *Jour. Agr. Research* 48(12): 1073-1083, figs. 1-2, June 15, 1934. (G-903) (Cooperation between the Division of Cereal Crops and Diseases and the Brooklyn Botanic Garden.)

Woodward, R. W., and Tingey, D. C. The Markton Oat - A New Variety for Utah. *Utah Agr. Expt. Sta. Leaflet* 42, 1 p. May 1934; also *Utah Farmer* 14(17): 3, April 10, 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Utah Agricultural Experiment Station.)

RICE

Adair, C. Roy. Studies on Blooming in Rice. *Jour. Amer. Soc. Agron.* 26(11): 965-973, figs. 1-2. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Beachell, H. M. Rice Experiment Stations May Give Domestic Industry Two Improved Varieties of Rice. *Rice News* 1(5): 8-9. March 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

Jodon, N. E. Plant Breeding. *Rice News* 1(6): 18. May 1934; (7): 24. June 1934; 1(12): 15-16. October 1934.

Tullis, E. C. The Root Knot Nematode on Rice. *Phytopathology* 24(8): 938-942, figs. 1-3. August 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Trichodema Sheath Spot of Rice. *Photopathology* 24(12): 1374-1377, figs. 1-2. December 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana, Texas, and Arkansas agricultural experiment stations.)

Leaf Stunt of Rice in the United States. (Note) *Phytopathology* 24(12): 1386. December 1934. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana and Texas agricultural experiment stations.)

Jones, Jenkin W., and Davis, L. L. The Occurrence of Stem Rot of Rice in California. (Note) *Phytopathology* 24(9): 1047. September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Smith, A. L., and Johnson, A. G. Panicles of Rexoro Rice Injured at Emergence by Sun Scald. (Note) *Phytopathology* 24(9): 1043-1044. September 1934.

WHEAT

Ausenau, Elmer R. Correlated Inheritance of Reaction to Diseases and of Certain Botanical Characters in Triangular Wheat Crosses. *Jour. Agr. Research* 48(1): 31-57, figs. 1-5. Jan. 1934. (G-881) (Cooperation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Bayles, B. B. Results from Cooperative Wheat Varictal Experiments in the Western Region in 1933, with averages for 1931 to 1933. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 76 pp. April 20, 1934. [Micrographed.]

Bever, Wayne M. Effect of Light on the Development of the Uredial Stage of *Puccinia glumarum*. *Phytopathology* 24(5): 507-516, figs. 1-3. May 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Physiologic Specialization in *Puccinia glumarum* in the United States. (Note) *Phytopathology* 24(6): 686-688. June 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Caldwell, R. M. Wheat Leaf Rust Lowers Milling and Baking Qualities. U. S. Dept. Agr. Yearbook 1934: 368-369, fig. 111. 1934.

Kraybill, H. R., Sullivan, J. T., and Compton, Leroy E. Effect of Leaf Rust (*Puccinia triticina*) on Yield, Physical Characters, and Composition of Winter Wheats. *Jour. Agr. Research* 48(12): 1049-1071, figs. 1-4. June 15, 1934. (G-905) ("A joint contribution from the Botany and State Chemist Departments, Purdue University Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, * * * * *)

Clark, J. Allen. Yields of Spring-Wheat Varieties Grown in Uniform Plot and Nursery Experiments in the Spring-Wheat Region in 1933 and for 5 Years, 1929 to 1933. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 20 pp. Feb. 12, 1934. [Mimeographed.]

and Bell, M. A. Comet Wheat. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 2 pp. [1934]. [Mimeographed]

Coleman, D. A., Snider, Sidney R., and Dixon, H. B.: The Diastatic Activity of Whole Wheat and Some Other Cereal Grains As Determined by the Blish-Sandstedt Method. *Cereal Chem.* 11(5): 523-531. September 1934. (Cooperation between the Grain Division of the Bureau of Agricultural Economics, and the Division of Cereal Crops and Diseases, of the Bureau of Plant Industry.)

Fellows, Hurley, and Ficke, C. H. Effects on Wheat Plants of *Ophiobolus graminis* at Different Levels in the Soil. *Jour. Agr. Research* 49(10): 871-880, figs. 1-5. November 15, 1934. (G-932). (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Fifield, C. C. Experimental Equipment for the Manufacture of Alimentary Pastes. *Cereal Chem.* 11(3): 330-334, figs. 1-3. May 1934.

and Clark, J. A. Milling and Baking Summary. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 4 pp. [February 1934] [Mimeographed]

and Quisenberry, K. S. Quality Data for Winter-Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter-Wheat Region in 1932 and 1933. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases, 29 pp. Dec. 20, 1934. [Mimeographed] [Unnumbered Pub.]

Florell, V. H. A Method of Making Wheat Crosses. *Jour. Heredity* 25(4): 157-161, figs. 14-15. April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the California and Idaho agricultural experiment stations.)

and Faulkner, Boyd. Growth of Wheat During the Heading Period. *Jour. Amer. Soc. Agron.* 26(11): 954-964, figs. 1-4. November 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Hayes, H. K., Ausenau, E. R., Stakman, E. C., and Bamberg, R. H. Correlated Inheritance of Reaction to Stem Rust, Leaf Rust, Bunt, and Black Chaff in Spring-Wheat Crosses. *Jour. Agr. Research* 48(1): 59-66. Jan. 1, 1934. (G-879) (Cooperation between the Minnesota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Hurd-Karrer, A. M. Selenium Injury to Wheat Plants and Its Inhibition by Sulphur. *Jour. Agr. Research* 49(4): 343-357, pls. 1-2, figs. 1-4, Aug. 15, 1934. (G-919)

 and Dickson, A. D. Carbohydrate and Nitrogen Relations in Wheat Plants with Reference to Type of Growth Under Different Environmental Conditions. *Plant Physiol.* 9(3): 533-565, illus. July 1934.

Johnston, C. O. The Effect of Mildew Infection on the Response of Wheat-Leaf Tissues Normally Resistant to Leaf Rust. (Note) *Phytopathology* 24(9): 1045-1046, fig. 1, September 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

 and Miller, E. C. Relation of Leaf-Rust Infection to the Yield, Growth, and Water Economy of Two Varieties of Wheat. *Jour. Agr. Research* 49(11): 955-981, 7 figs. December 1, 1934. (G-940). (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Mains, E. B. Inheritance of Resistance to Powdery Mildew, *Erysiphe graminis tritici*, in Wheat. *Phytopathology* 24(11): 1257-1261. November 1934. ("This study was started while the writer was a member of the Department of Botany, Purdue Agricultural Experiment Station, and the Division of Cereal Crops and Diseases of the U. S. Department of Agriculture. It has been continued at the University of Michigan.")

McCall, M. A. Developmental Anatomy and Homologies in Wheat. *Jour. Agr. Research* 48(4): 283-321, pls. 1-2, figs. 1-14. Feb. 15, 1934. (G-886)

McKinney, H. H., and Sando, W. J. Twisted Wheat and Twisted Trees; Twisting of the Rachis of Wheat Heads by Short Daily Photoperiods Suggests a New Approach to Studies of Twisted Trees. *Jour. Heredity* 25(7): 261-263, fig. 1, July 1934.

 and Sando, W. J. Recumbence in Wheat as Influenced by Light and the Soil Surface. *Jour. Heredity* 25(9): 351-357, figs. 7-9. September 1934.

 Sando, W. J., Swanson, Arthur F., Hubbard, Vincent C., Smith, Glenn S., Suneson, Coit A., and Sutherland, Joe L. Field Experiments with Vernalized Wheat. *U. S. Dept. Agr. Circ.* 325, 8 pp. September 1934.

Quisenberry, K. S. Summary of Yields of Wheat Varieties in the Uniform Winter-Hardiness Nurseries of 1932-33. *U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.]* 3 pp. Jan 10, 1934. [Mimeo-graphed]

 Comparison of Winter-Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter-Wheat Region in 1933. *U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.]* 56 pp. March 1, 1934. [Mimeo-graphed]

Snider, Sidney R., and Coleman, D. A. Some Observations on the Use of Selenium and Its Compounds as a Catalyst in the Determination of Protein in Wheat by the Kjeldahl Method. *Cereal Chem.* 11(4): 414-430, figs. 1-4. July 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division, Bureau of Agricultural Economics.)

Sprague, Roderick. Preliminary Note on Another Foot Rot of Wheat and Oats in Oregon. (Note) *Phytopathology* 24(8): 946-948, fig. 1. August 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

Suneson, Coit A., and Kiesselbach, T. A. Differential Varietal Responses of Winter Wheat to Time of Planting. *Jour. Amer. Soc. Agron.* 26(4): 294-296. April 1934. (Cooperation between the Department of Agronomy, Nebraska Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

Suneson, Coit A., and Peltier, G. L. Cold Resistance Adjustments of Field-Hardened Winter Wheats as Determined by Artificial Freezing. Jour. Amer. Soc. Agron. 26(1): 50-58. January 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Nebraska Agricultural Experiment Station.)

Suneson, Coit A. and Peltier, G. L. Effect of Stage of Seedling Development upon the Cold Resistance of Winter Wheats. Jour. Amer. Soc. Agron. 26(8): 687-692. August 1934. ("Based on cooperative investigations between the Division of Cereal Crops and Diseases, * * * *, and the departments of agronomy and plant pathology, Nebraska Agricultural Experiment Station, Lincoln, Nebr.")

Sutherland, J. L., and Jodon, N. E. Resistance of Wheat Varieties to Bunt at Moccasin, Montana, and North Platte, Nebraska. Jour. Amer. Soc. Agron. 26(4): 296-306, April 1934. (Cooperation between the Division of Cereal Crops and Diseases and the Montana and Nebraska Agricultural Experiment Stations.)

Taylor, J. W. Report of Winter Survival of Thirty Wheat Varieties in the Eastern Winter-Hardiness Nurseries for 1933-34. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 4 pp. Sept. 7, 1934. [Mimeographed.]

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

- 0 -

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (May 18)

Seeding of the rice breeding, genetic, and disease experiments was completed May 17. The first seeding was made on March 16 when a seed treatment experiment was sown. Another seeding of the same experiment was made on April 15 in order to compare the effect of time of seeding. The nursery yield tests consisting of 116 varieties and selections divided into six groups on the basis of time of panicle emergence, and advanced generation hybrid selections were sown April 10 to 13, inclusive. The stands obtained are somewhat better than those of last year.

Unfortunately it was not possible to prepare the land for the plot technique studies before a series of heavy rains set in. Two replications of a row spacing - rate of seeding test were sown on May 4 after considerable delay. The next day more than 6 inches of rain fell and it was May 14 before the two remaining replications could be seeded.

The crossed seed obtained last year was treated with mercury dust and sprouted on wet cotton placed on small paper ice cream dishes in the office. The young plants were transferred to a large screened cage formerly used for insect experiments. The method proved quite satisfactory.

Some "vernalized" material was sown May 2 and emerged the 13th. Treated and check material emerged at the same time but the stands of the treated plots were thinner than those of the checks. One albino was found in some X-rayed Caloro seedlings.

Seedling diseases have not been prevalent this season. Dr. E. C. Tullis visited the station April 29 and 30.

A class in plant breeding from Southwestern Louisiana Institute at Lafayette visited the station on May 16.

MISSOURI

AGRICULTURAL EXPERIMENT STATION, COLUMBIA (Rice Agronomy, B. M. King) (May 21)

No progress has been made at Elsberry in spring planting, except for the first date-and-rate-of-seeding experiment with rice. Thus far, weather conditions, characterized by excessive rain, low temperatures, and much cloudiness, have been almost identical with those of the spring of 1923, when it was impossible to begin field work before the first of June. Conditions are not only unfavorable at Elsberry but over the entire State as a whole.

Very little corn has been planted and a large percentage of the fields already planted may have to be replanted. Oats and wheat are showing some harmful effects of the long continued siege of cool wet weather.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Auschmus) (May 16)

Weather conditions for the first half of May were favorable for the growth of cereal crops where it has been possible to sow the seeds. It has been cold and wet, which has delayed seeding. This condition has prevailed over the entire State of Minnesota.

The spring wheat stem-rust nursery was seeded on May 7 and 8 but has not emerged. Winter wheat and pastures are making an excellent growth.

The maximum temperature for the period from May 1 to 15 was 69° on May 7; the minimum temperature was 32° on May 4. The precipitation was 2.92 inches.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccoli, J. D. Sieglinger)(May 15)

The severe drought was finally broken by a rain of 1.92 inches occurring on three days. This moisture assures a large acreage of sorghums and broccoli in this part of the Great Plains, limited only by the seed supply. Most of the winter wheat in this region was too far advanced to be benefited much by the rain.

The maximum temperature for the first half of May was 94° on the 11th and the minimum was 40° on the 4th. The precipitation totaled 2.01 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(May 15)

A soaking rain over northern Oklahoma was of great benefit to pastures, alfalfa, and spring-sown cereals. Most of the winter wheat was too badly burned to recover. Winter-wheat varieties on the Station in 1/47th-acre plots will do little more than return seed. Fully half of the varieties in rod rows, however, still show promise of producing fair yields.

Early spring barley and oat varieties and about 95 percent of the winter-wheat varieties in the nursery and in plots are first headed.

KANSAS

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)(May 15)

The rainfall from May 13 to 15 amounted to 2.78 inches. This has broken the drought, stopped the wind erosion and dust movement, and given the farmers great hopes for row crops. All small grain in this region and westward was almost entirely eliminated by the long drought. A few plots of late sown wheat on the rate-and-date-of-seeding experiment on the cereal project may be harvested. No oats or barley were sown. The small grain nursery on fallowed land will not be harvested.

Plans are being laid to carry forward the sorghum work on an increased scale, partly due to the fact that more time can be given the crop this year because of the failure of the small grains.

The value of listing the land to prevent soil movement by wind was further proven this season where the work was done in time. Perhaps the greatest value of listing came from having the land in an open condition to hold and take in moisture. Most of the dust in this region was of very fine texture and was quickly agitated by even a light breeze, and for this reason could not well be controlled by tillage methods. On the other hand, many fields were kept in place by methods which roughened the land. Frequently such fields actually accumulated drifting soil.

Since the rain the demand for sorghum seed has greatly increased.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(May 17)

Practically continuous cloudy weather interspersed with frequent rain during the first half of May made it difficult to get field work done. Some precipitation was recorded on all but 4 of the 15 days and totaled 1.95 inches.

The wheat, oats, and barley varietal plots emerged with good stands about May 1 and appear to be in good condition. The wheat nursery rows sown April 27 and 29 emerged about May 11 and 13 with good stands but have suffered some slight damage by birds, rabbits, and gophers; fortunately, the damage is confined chiefly to the border rows. The uniform wheat and oat rust nurseries were sown May 3 and are just emerging.

Seeding of the flax 17-foot row nursery was started May 10 but was interrupted by rain May 10 and 11 and was not completed until May 13. The flax increase plots and most of the nursery on flax-sick soil were sown May 14 and 15. The varietal plots in triplicate were sown May 16.

Dr. S. C. Salmon visited the station May 8.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(May 15)

The weather has been cool, cloudy, and wet for the past several weeks. The total precipitation recorded since January 1 is 6.17 inches, or more than 2 inches above normal for that period. A measurable amount of rain has fallen on 11 days this month and there have been but 2 days without a trace of rain. The total for the first half of May is 2.17 inches, which nearly equals the average May rainfall.

Owing to the cool, cloudy weather and delayed seeding crops at the Substation and in the vicinity are about 2 weeks later than usual.

The seeding of flax varieties during this week completes the seeding of cereal experiments with the exception of corn and proso varieties and later dates of seeding flax.

The winter-wheat nursery was completely winter-killed due partly to the dry fall and lack of fall growth. Winter wheat field plots sown in standing corn show a low percentage of survival. Spring-sown cereal crops are in good condition with the exception of part of the smut nursery which was injured by soil blowing in April.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(May 16)

The weather for the first half of May continued to be cool and backward and there was an average amount of precipitation. Temperatures of 32° or lower were recorded on 10 days during this period and the maximum temperature was 66°. Precipitation amounting to 0.96 inch was recorded.

The emergence of spring grains was retarded by low temperatures, but stands on all of the seedings are quite satisfactory. Winter wheat fields have not made the normal amount of growth but are still in very good condition.

Spring survival notes were recorded on all winter-wheat plots and nursery rows soon after May 1. Valuable differential killing occurred in all of the less hardy varieties and strains.

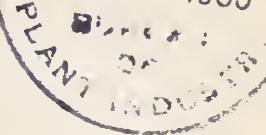


CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

JUL 9 - 1935



June 10, 1935

No. 8.

Vol. 27

Personnel (May 26 - June 10) and Field Station (May 16 - 31)

PERSONNEL ITEMS

Mr. C. H. Kyle left Washington on June 8 for Tifton and Experiment, Ga., where he will select and hand pollinate corn and obtain data in cooperative experiments. He will also go to points in Florida, South Carolina, and North Carolina in the interests of cooperative corn investigations.

Dr. S. C. Salmon left Washington on June 3 to visit State agricultural experiment stations and Federal field stations in Iowa, Minnesota, Nebraska, Kansas, Colorado, Utah, Idaho, Washington, Oregon, California, Montana, North and South Dakota, Illinois, Indiana, and Ohio to confer on cooperative wheat and weed research. In Oregon he will attend the meetings of the Western Section of The American Society of Agronomy to be held at Pendleton June 18-20.

Mr. F. R. Stanton returned on May 29, from a short trip to Georgia, South Carolina, and Virginia in the interests of winter-oat improvement. Mr. Stanton reports that he was favorably impressed with some of the new smut-resistant red oat varieties that are being developed by Mr. George J. Wilds, Director of Plant Breeding, Coker's Pedigreed Seed Co., Hartsville, S. C. Coker 32-1, a segregate from Norton strain No. 2 x Navarre, Coker 33-19 and 33-47, selected lines from a cross of Big Boy x Navarro, and Coker 33-50, representing a line from a Fulghum x Navarro cross, are attracting attention. Of these the 33-19 and 33-47 are of special promise and eventually may become valuable new varieties of early red oats for fall seeding in the South. Coker 33-47 resembles the Fulghum parent in many characters; it is slightly harder and matures in about the same time as that variety. According to Mr. Wilds, 33-19 is even more productive and produces grain of better quality than 33-47, but the straw may be too short on the poorer soils of the South. It is possible that Coker 33-47 will prove to be the best general purpose variety. It would seem advisable that experiment stations in the South should obtain these varieties for growing in nursery and plot experiments.

At Experiment, Ga., several plots representing smut-resistant lines from a Markton x Red Rustproof cross appeared rather promising, although Mr. Bledsoe reported that a few heads of smut had appeared in some of those lines this year. Under the humid conditions of the Southeastern States it seems especially difficult to eliminate all the susceptible lines from hybrid populations, by artificial inoculation experiments. Mr. Bledsoe was growing many hybrid lines of oats including selections from crosses of Red Rustproof, Fulghum, etc., on Victoria and Bond for the development of strains resistant to smut and crown rust. His nurseries, including the experimental seedings of wheat, rye, oats, and barley occupy about 7 acres. The small grains were being affected rather seriously by the continued dry weather.

On the test farm in Amelia County of the T. W. Wood & Sons, seedsmen, Richmond, Va., some excellent plots of wheat, oats, and rye were observed. The plots of Norton strain No. 3 and Lee winter oats looked especially fine. The plot of Coker 32-1 oats showed no smut infection whatever but was short in the straw. Plots of Fulghum oats from various sections of the United States generally showed considerable smut infection, although some of these stocks were relatively pure as to variety. The plots of winter wheat were especially good and were free from off-types and other grain mixtures. Dixie, Purplestraw, Gasta, Redhart strain No. 3, and Leap appeared to be best. No loose smut was observed in the Redhart strain No. 3 plot.

RECENT PUBLICATIONS

The Nature of Immunity in Plants. J. G. Dickson. Pacific Sci. Cong. Proc. 5(1933) v. 4: 3211-3219. 1934. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Wisconsin Agricultural Experiment Station.)

Inheritance of Stem Rust and Bunt Reactions in Spring Wheat Crosses. J. Allen Clark. Proc. World's Grain Exhib. & Conf. Regina, Canada, 1933, 2: 37-43. 1935.

Cereal Disease Forecasting. Harry B. Humphrey. Proc. World's Grain Exhib. & Conf. Regina, Canada, 1933, 2: 214-219. 1935.

Illinois Corn Performance Tests. Results for 1934. G. H. Dungan, J. R. Holbert, W. J. Mumm, J. H. Bigger, and A. L. Lang. Ill. Agr. Expt. Sta. Bull. 411, pp. 55-88, figs. 1-4. February 1935. ("In cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Illinois State Natural History Survey.")

Effect of Crown Rust Infection on Yield and Water Requirement of Oats. H. C. Murphy. Jour. Agr. Research 50(5): 387-411, figs. 1-10. March 1, 1935. (G-957) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the botany and plant pathology section of the Iowa Agricultural Experiment Station.) (Received May 31, 1935)

Factors Affecting the Absorption of Selenium from Soils by Plants. Annie M. Hurd-Karrer. Jour. Agr. Research 50(5): 413-427, figs. 1-4. March 1, 1935. (G-959) (Received May 31, 1935).

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (June 7)
The total precipitation for May was 7.25 inches, which fell on 6 days. The 25-year average for May is 4.99 inches.

The maximum temperature was 89° and the minimum, 55°.

Because of wet weather the latter part of April and the first part of May, seeding operations on the Station were not completed until May 17.

Early-seeded rices have been irrigated and cotton has been thinned and cultivated. Early-planted corn, not killed by the stalk borer, has tasseled.

In commercial fields, owing to weather conditions, the rice crop was rather sharply divided into mainly early and rather late sowings. In the main, stands are good and the crop is vigorous.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (June 5)

The rainfall from January 1 to May 31 was 28.63 inches, which is 4.50 inches above normal. The rainfall in April this year was 5.02 inches which was 2.90 inches above normal. Most of the land is prepared for rice seeding in April, so these operations were delayed. Usually considerable rice is sown in April but this year there was very little. The rainfall in May was

less than 1 inch above normal this year but there were a great many cloudy and rainy days during the month, so the rice-seeding operations were further delayed. Normally, nearly all of the rice is sown at this date but only about 85 percent of the crop has been sown.

Rains that followed soon after seeding made it necessary to reseed some fields as well as the Station plots. The stands were also reduced in many cases. Indications now are that the yields will probably be low and the crop will be late this year.

The rice varietal experiment in field plots and all rice nursery experiments have been sown and they are all up to good stands. Rains delayed seeding a part of the nursery but fortunately it was possible to complete seeding before it became extremely late.

Except for a few late fields, all of the winter oats have been harvested. None of the oats have been threshed, but the yields will probably be a little above the average. The acreage sown to oats in this section is much larger than usual.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Auscmus)(June 3)

Weather conditions for the last half of May were especially good for the growth of small grains. Temperatures have been approximately normal and the soil is well supplied with moisture. Rye is headed, winter wheat is almost in the boot, and spring grains are growing rapidly.

Leaf rust is beginning to appear in the winter-wheat nursery, but no stem rust from natural infection has been found to date.

The maximum temperature for the period from May 16 to 31 was 75° on May 21, 27, and 31; the minimum was 42° on May 23. The total precipitation for May was 3.81 inches, as compared with a normal of 3.67 inches.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)(May 31)

Weather conditions in May have been abnormal and unfavorable for most farming operations. Excessive rainfall has caused much damage from soil erosion and flooding and has prevented field work.

The total rainfall for the month was 11.52 inches, which has been exceeded only once in the history of the Station. It is estimated that only about one-third of this was effective, as much of it came in heavy downpours with much run-off. The maximum temperature was 88° and the minimum 44°; the mean of 68° was 2.8° below normal. The evaporation from a free water surface was the lowest since 1920 and the mean humidity was the highest on record with one exception.

Excessive rainfall, high humidity, and cool weather have been both favorable and detrimental for grain. The conditions have been very favorable for the spread of all rusts, leaf blotches, and mildew. The cool weather and abundant rainfall have been favorable for the growth and development of the grain. Leaf rust of wheat has been severe and only the most resistant strains have escaped severe injury. Stem rust appeared early in the month and has injured all wheat seedlings, especially in the head rows, in which stands are very thin and plants late in maturing. Crown rust of oats appeared early in the month while stem rust was much later. Crown rust has done considerable damage to oats, although stem rust is not widespread enough to cause much damage as yet.

Oats have made good growth and promise to produce one of the best crops in years in this section. There has been considerable lodging owing to rank growth, wind, and frequent rains. Wheat in this section is very poor. Winter-killing and stem rust have caused such thin stands that the crop probably will be a failure.

Spring-sown barley gave promise of an unusually high yield early in the month. Excessive moisture and high humidity have favored leaf blotch and mildew to such an extent that the crop is much less promising at present. However, a fair to good crop probably will be harvested, which is unusual for spring barley. Fall barley was entirely winter-killed.

The cool weather in May and other weather conditions have made the harvest one of the latest on record. Wheat varieties were not fully headed until the end of the month, whereas normally they are almost ready for harvest. Barley is fully headed; some varieties started to ripen at the end of the month, whereas barley is usually harvested before May 25. Oats are also late in maturing which no doubt has been beneficial, as they were late sown. Even the Fulghum types are still unharvested, although some will be ripe soon. Most small grains were very slow in heading; in many varieties there was a difference of 10 days between dates of first heading and fully headed. Only a little harvesting will be done before June 15 unless weather conditions change materially.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccoli, J. B. Sieglinger)(June 1)

Precipitation has been recorded on nearly every day of the last half of May; one extreme has followed another. The first seeding of the broomcorn varietal plots was made on May 29. Most of the grain sorghum planting will be done during the second week of June.

The maximum temperature for the last half of May was 87° on the 31st and the minimum 39° on the 24th. The precipitation was 4.87 inches; the total for the month was 7.17 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(June 1)

Rains apparently have been general. During the week ending May 18 rains were reported to have prevented all field work at stations of the Division of Dry Land Agriculture in 9 states from Montana and North Dakota in the north to Texas and New Mexico in the south.

At Woodward, rains and cool weather since May 13 have caused much renewed growth in the nursery, and harvesting of many varieties will be delayed as much as 3 weeks. Early Kanred, Nebraska No. 28, and other early selections were too nearly mature to be greatly benefited by the rains. Harvesting of the early varieties in the nursery will be started late next week.

Spring oat and barley varieties are making unusually rank growth.

Dr. K. S. Quisenberry was a Station visitor on May 30 and 31 and spent more than a day studying winter-wheat varieties in the nursery and in plots.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston)(May 27)

The menace of drought and dust storms in the hard red winter wheat belt seems to be definitely ended for the time being. Excellent rains have fallen over the entire territory during the period from May 10 to 27. At Manhattan the total rainfall for that period is 6.7 inches. These rains came barely in time to save nursery and plot sowings of winter wheat, spring wheat, and oats. Before the rains began, many hybrids in the winter-wheat leaf rust nursery looked as though they would die, and surface irrigation was employed to save them. Since the beginning of the rainy period wheat and oats in the vicinity of Manhattan have made a wonderful recovery and now look well. In the western part of the State the rains came too late, however, to save the wheat.

The past winter was very mild and extremely dry. March and April had only 0.21 and 1.05 inches of rain, respectively, and terrific dust storms occurred at intervals throughout those months.

The early spring temperatures have been too low for rust infection but seemingly favored mildew infection in the leaf-rust nursery. Mildew continued to develop during the dry months of March and April and is now very severe on both winter and spring wheats. Leaf rust infection is just now becoming prevalent on wheat, but stem rust has not yet been observed. Crown rust has been started in the uniform oat rust nursery by putting out infection centers of rusted seedlings from the greenhouse.

Most of the winter wheat is now fully headed and early spring varieties are heading. Oats are just beginning to head well.

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (June 1)
Moisture to the amount of 7.65 inches has fallen since May 13. Fields are now well soaked to a depth of approximately 30 inches where cultivation was such as to retard run-off. The rains have been so frequent in the last two weeks, however, that it has not been possible to make the experimental plantings of sorghum due on May 15 and again on June 1. It is probable that for this season the plantings can only be made on one date.

A few fields of wheat seemingly will make sufficient recovery for a light yield of wheat. A few plots of late-sown wheat may be harvested on the Cereal Project. The wheat nursery has shown satisfactory revival and may at least furnish some seed.

A considerable acreage of sorghum and some corn will be planted in this region owing to the failure of small grain. A larger area of land than usual will be fallowed. Native grasses are reviving rapidly and the feed problem is gradually becoming less troublesome.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (June 1)

There have been 7.41 inches of rain, which fell on 20 of the 31 days in May. This brings the total for the present year to 12.12 inches for the first 5 months as compared to an average of 6.40 inches. The weather during May has been unusually cool and all crops are later than usual. The maximum temperature was 80° on May 10, the minimum 28° on the 2nd.

Corn planting has been delayed by the unusually wet weather. Only about one-fourth of the corn land in this area has been seeded. Station records show that corn seeded after June 5 may be immature. Barley, oats, and spring wheat are making satisfactory growth. Pastures are making a fair growth but need warmer weather.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, C. A. Suneson) (June 1)

The mean temperature of 55° recorded for May was 6.5° below normal and the lowest in 43 years. The precipitation totaled 5 1/4 inches, the highest in May since 1913. Very little of it was lost through run-off or evaporation. Radiation has been very low for the past 20 days.

Present indications are for a harvest later than normal, as only 5 percent of the varieties are 80 percent headed. There is already some serious lodging despite the slightly reduced height caused by the spring drought. First leaf- and stem-rust infections have not yet been observed or noted, but septoria is already doing considerable damage. Only half of the yield trials and none of the breeding experiments with corn have been planted here. There is little chance of completing these before June 15 and some may have to be abandoned.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(June 1)

Cool, cloudy weather, favorable for slow, steady plant growth, prevailed during the last half of May. Moisture conditions also have continued favorable. The precipitation recorded for this period amounted to 0.68 inch.

Wheat, oat, and barley stands appear generally good. Flax stands are heavier than usual except in spots where crust formation caused by wet soil at seeding time and by rain after seeding prevented emergence.

Crops and native vegetation have made good growth so that after the long drought unfamiliar verdure meets the eye in all directions. Prospects of good crops and experimental results appear very favorable at this time.

The maximum temperature for the last half of May was 74° on May 20 and the minimum 34° on May 22.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(June 1)

The seeding of cereal experiments is completed except for the date-of-seeding experiment with flax. All spring-sown crops at the Substation are in good condition but much later than usual, owing to cool, cloudy weather. Corn and proso varieties have not yet emerged.

The precipitation for May was about 2.70 inches, or about half an inch above normal. About half an inch of rain fell last night to be recorded as June rainfall and it is raining today.

Although the mean temperature for May was much below normal there has been no killing frost since early in the month, when none of the tender crops had yet emerged.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(May 31)

Temperatures in May have remained generally cool, and grains in the cereal project have made good growth. The seeding of inheritance and hybrid material was completed May 16 after the writer had returned from Langdon, where nursery and wheat varietal plots were sown May 6 to 9. Stands generally are very good.

The nursery at Fargo has been cultivated once and lack of rain the last half of May has prevented more weeds from starting. The nursery field was heavily infested with a species of nematode during the period of seeding. They could be discovered in the top inch of soil anywhere in the nursery while the top soil was wet. The field was in corn last year and barley in 1933. Their exact identity has not been established, but evidently they are not the variety harmful to wheat since they have nearly disappeared from the top soil and do not seem to be attacking the wheat.

The uniform winter-hardiness nursery sown at Langdon last fall showed the best survival of any year in which it has been sown there, i. e., about 50 percent average survival. Soil moisture conditions at Langdon were better than at any seeding time in recent years. Wheat seeding on farms around Langdon was completed earlier than in the Fargo district, which is the reverse of the usual order.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(June 1)

The cool, backward weather that has prevailed this spring has been ideal for the growth of winter annual weeds, and winter wheat fields are very foul with fan weed and different kinds of mustard. Reports of foot rot in winter wheat have been received and symptoms of this disease have been found on the Station plots. Winter-wheat specimens have been sent to Dr. Hurley Fellows at Manhattan, Kans., for inspection but no report has been received to date. There is also evidence that some winter-wheat fields were injured by low temperatures to such an extent that the plants do not have enough vitality to make normal growth.

Work on the cereal project has progressed normally. The last plots in the date-of-seeding experiment were seeded May 21 and emerged with good stands.

Precipitation of 0.85 inch was received on May 31, which brought the total for the month up to normal. The total precipitation for May was 2.25 inches. The maximum temperature was 71° on the 21st and the minimum 23° on the 2nd.

OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens) (May 31)

Lack of precipitation during the past month has resulted in severe drought injury to winter wheat in many sections of eastern Oregon. In some localities wheat is still in good condition. On the Station, the winter-wheat crop will be the smallest we have ever had, many of the plots already being so severely injured by drought that several inches of rain will not likely make much improvement in the crop. Spring grains are not yet showing drought injury but probably will soon if dry weather continues. Most of the winter wheats are fully headed but are very short even where they are not badly fired. Early spring barley varieties are beginning to head.

The total precipitation for the 5-month period, January 1 to May 31, 1935, was only 2.73 inches. In May there was only 0.27 inch. The lowest temperature in May was 33° on the 7th and the highest 83° on the 21st.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (June 1)

Spring crops grow well during the first half of May, although temperatures have generally been low. Since May 12 rains and continuous cloudy weather have prevailed. A precipitation of 2.60 inches was recorded at the Experiment Farm, while it was generally much in excess of that amount in other parts of the State. A mean temperature of 53° for May is considerably lower than the normal and 10° lower than for May 1934.

Winter wheat throughout the State is especially promising, as it is now nearing the heading stage and the ground is well supplied with moisture. Desert and mountain range is more promising than for years. Rivers have risen much above the predicted highs and there is promise of abundant water for late summer irrigation. It has not been necessary to irrigate the spring cereal nursery as yet, while in 1934 three irrigations were applied by this time.

During the first part of May, 12 uniform corn and grain-sorghum varietal nurseries were planted in various counties of the State. That completed the spring planting for this season. The chief thing needed now is warm, clear weather and with this the season could be classed as exceptionally favorable for all plant growth.

C E R E A L C O U R I E R



Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

June 25, 1935

No. 9

Personnel (June 11 - 25) and Field Station (June 1 - 15)

PERSONNEL ITEMS

Mr. J. Allen Clark left Washington on June 23 for Minneapolis, Minn., to attend the meetings of the Corn Belt Section of The American Society of Agronomy to be held June 25-27. He also will inspect and take notes on cooperative wheat nurseries in Minnesota and North Dakota and confer with collaborators on cooperative wheat investigations.

Dr. H. B. Humphrey left Washington June 21 for points in Kentucky, Indiana, Iowa, and Minnesota to take readings on cooperative uniform rust nurseries and confer with officials of agricultural experiment stations and others on cooperative cereal-disease investigations. He will also attend the meetings of the Corn Belt Section of The American Society of Agronomy to be held at Minneapolis June 25-27.

Dr. M. T. Jenkins left Washington on June 12 on an official trip in Ohio, Indiana, Illinois, Wisconsin, Minnesota, and Iowa in the interests of cooperative corn breeding investigations. He will also attend the meetings of the Corn Belt Section of The American Society of Agronomy to be held at Minneapolis June 25-27.

Mr. R. W. Leukel recently spent two days at Culpeper, Va., and vicinity to inspect wheat fields and to observe the effect of the hot-water treatment for loose smut of wheat.

Dr. M. A. McCall returned on June 24 from a trip that included stops at Manhattan, Kans., Lincoln, Nebr., and Ames, Iowa. He reports that rains have prevented the planting of corn in a great deal of the middle Corn Belt, particularly in northern Missouri and southern Iowa. Cool temperatures have also tended to hold crops back and the season is later than normal in all respects.

Small grains in Kansas and Nebraska have reacted very favorably to rainfall occurring during and since May, except that they are tending to lodge. Leaf rust is abundant on wheat and stem rust is making its appearance in Kansas and Nebraska. Conditions are such that with the lateness of the crop a serious epidemic can easily develop.

Mr. T. R. Stanton left Washington on June 22 for points in Indiana, Illinois, Missouri, Kansas, Colorado, Nebraska, Iowa, Wisconsin, Michigan, and New York to inspect cooperative oat experiments and confer with officials of the State agricultural experiment stations on future cooperative work. He will also study the oat crop as grown under farm conditions. At Ames, Iowa, Mr. Stanton will assist in harvesting the cooperative oat breeding nursery.

Dr. Neil E. Stevens left Washington June 13 for travel in Ohio, Indiana, Illinois, Iowa, Wisconsin, Michigan, and Minnesota in the interests of cooperative investigations of corn diseases.

Mr. J. W. Taylor and Dr. M. N. Pope spent three days in the early part of June at Appomattox, Blacksburg, Glade Spring, and Fishersville, Virginia, taking notes on winter hardiness and disease in cooperative barley nurseries and harvesting the crop.

PROOF OF PUBLICATIONS

Effect of Temperature and Light on Development of the Uredial Stage of Puccinia graminis. L. W. Melander, Jour. Agr. Research. Galley proof read June 21.

RECENT PUBLICATIONS

Mixing-Time Experiments with Flours Milled from Different Classes of Wheats. Ray Weaver and C. C. Fifield. Cereal Chem. 12(3): 281-288. May 1935. (Cooperation between the Grain Division, Bureau of Agricultural Economics, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANARICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (June 17)

The rice nursery is in as good condition as is to be expected so soon after submergence. The changed environmental conditions due to submergence often result temporarily in an unhealthy appearance of the plants. Irrigation was used on some late-sown spaced material to hasten emergence.

Volunteer rice in the hard dough stage was brought in by a farmer on the 14th. Early Prolific and Caloro rices sown in March show a few panicles. This probably is due to differential response to day length within varieties.

The "white tip" disease appeared early in June and is very noticeable in Blue Rose, Early Prolific, and Caloro sown on March 15, April 1, and April 15, respectively. A farmer's field of Blue Rose, visited this morning, also shows pronounced chlorotic areas in the leaves. This field had received diverse treatment last year. The rice looked best on a part that had been flooded during the winter; the crop on a part that had been pastured during the summer and plowed in the winter seemed inferior to that on another part where clean summer fallow was used. Rice following sorghums seemed to have made slow growth. Previous treatment of the land had little if any influence on prevalence of "white tip."

Mr. H. M. Beachell, of Beaumont, Tex., was at the Station a few days the early part of June. Mr. F. S. Gooch, of Kaplan, La., who has recently been given a fellowship at the Louisiana State University to conduct studies on rice diseases, called at the Station on the 14th and 17th.

MINNESOTAAGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausmus) (June 19)

Temperatures for the first half of June were somewhat below normal. The minimum was 42°, recorded on June 3, and the maximum 87° on the 13th. The precipitation from June 1 to 16 was 3.44 inches.

Cereal crops have made a luxuriant vegetative growth as a result of the cool weather and sufficient moisture supply. Winter wheat is now heading and spring wheat is in the boot stage. Leaf-rust infection from natural infection is quite general and stem rust is present throughout the winter-wheat and spring-wheat nursery from artificial inoculations.

Germination and growth of corn have been retarded by the cool temperatures.

On June 14 and 15, the Minnesota Agricultural Experiment Station held a Sesquicentennial celebration. Papers were presented giving the development and achievements of the station since its beginning. Dr. Andrew Boss, Vice Director of the Station, who has been a member of the experiment station staff for 46 years, was given special recognition. He will retire on July 1.

Mr. E. S. McFadden of Redfield, S. Dak., arrived at the station on June 7 and will be located at University Farm for the next two months to assist in the wheat-breeding program and work on some special problems.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)(June 15)

Weather conditions for the first 10 days of June were favorable for the maturing of small grain. A good deal of early grain such as barley, early oats, and most of the wheat was cut during that period. Starting June 10, a period of wet weather set in bringing the total rainfall for the first half of the month to 3.79 inches compared to a normal rainfall for the month of only 2.74. The mean temperature was 75.8° compared to a normal of 80.3° for June.

As a result of the rains the past few days all grain is badly lodged and will be difficult to harvest. The wheat varietal test has been so injured by stem rust that it is breaking over badly and will be difficult to harvest. The oats and barley varietal tests were harvested before the rains started. Cutting of nursery grain was under way and the barley and about half of the oats nursery had been harvested.

All small grain is approximately 2 weeks late in maturity this season. This delayed ripening has been an important factor in the severe rust injury to wheat and oats. Crown rust of oats is widespread and has done a good deal of damage, while stem rust has not injured the grain to so great an extent although on late oats it is doing considerable damage. Wheat in Denton County is so badly injured by stem rust that few fields will yield sufficient to cover the cost of harvesting and threshing.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccorn, J. B. Sieglinger)(June 16)

The weather of the first half of June approached the ideal for sorghum planting and small grain ripening. Grain sorghum and broccorn planting went along according to schedule and previous experience on date of seeding. Good stands emerged on the plantings of broccorn and grain sorghum in the varietal experiments on May 29 and June 8, respectively.

The maximum temperature for the first half of June was 95° on the 9th and 10th; the minimum for the same period was 47° on the 7th. The precipitation was 1 inch in three measurable showers.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(June 16)

The harvest in the varietal nursery is well under way, although varieties are ripening slowly. If present weather conditions continue the second growth of wheat that came on after the rains since May 13 will have a chance to produce seed, for already in some of the varieties second-growth culms are now heading and in the milk stage.

A block of Colorado No. 37 oats, sown with a drill on March 2 to determine the effect of cropped land on the following winter wheat crop, have made unusually vigorous growth. The oats were first headed on June 8 and have a uniform height of about 2 1/2 feet. If favorable weather continues they may make a high yield.

Nursery material inoculated with bunt is showing satisfactory differential infection. Leaf-rust infection is heavier than usual but not severe enough to appreciably affect yields.

Dr. K. S. Quisenberry spent June 8 to 12 at Woodward taking bunt notes and studying nursery material.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(June 17)

Wheat, oats, and barley in varietal plots appear in excellent condition, the plants being 8 to 12 inches high. The awns of Vaughn barley are showing and a few heads are out. Wheat in nursery rows is also in excellent condition, although the plants are not so far advanced as those in the plots.

Flax has grown rapidly during the past week and that sown before the middle of May is now about 6 inches high. A few plants have succumbed to wilt in the flax-sick-soil nursery but the disease has not yet become general even in susceptible varieties.

No rust of any kind has been noted. Weeds are much less prevalent than usual. No grasshoppers have yet been seen. Some slight cutworm damage has been noted in flax.

Moderate temperatures, somewhat below average for this time of year, were favorable for plant growth during the first half of June. The maximum temperature was 85° on June 14 and the minimum 36° on June 5. The precipitation at timely intervals, amounting to 1.68 inches, maintained adequate soil moisture conditions.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(June 15)

There have been frequent light showers during the first half of June, totaling about 1.35 inches. Warmer weather and more sunshine during the past week have caused rapid growth of crops.

All of the spring-sown small grains are in excellent condition but later than usual for this date. Winter rye is heading but the stand is very thin. Winter wheat in field plots also is very thin, while that in nursery rows was completely winter-killed.

Field plots and nursery rows have been trimmed and staked and roads, alleys, and nursery rows have been cultivated.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(June 15)

Continued cool weather with occasional precipitation has caused the small grains to tiller very heavily, and all crops in the cereal project are from one to two weeks later than average. Stands are excellent and the moisture supply is sufficient for immediate needs. A light frost of 32° at Fargo and 28° at Langdon caused no perceptible injury to wheat at either station. Conditions apparently were ideal for the development of bunt in the artificially inoculated experiments.

A short visit to Langdon was made on the 10th and 11th and the nursery and varietal plots of wheat were found to be in excellent condition.

Grains in the yield nurseries at Langdon should head about July 10 and at Fargo about July 4.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(June 17)

Weather conditions have been quite favorable for the last 2 weeks and all crops have made normal growth. The earlier varieties of winter wheat will be heading within a few days. Although the winter wheat fields in this vicinity are very weedy, the present prospect for this crop is good. Spring grains on the station plots have made very good growth.

A rain storm on June 14 was accompanied by some hail, and crops on the station were injured slightly. Fields of winter wheat in other parts of the Judith Basin were almost completely destroyed by this storm.

A precipitation of 1.22 inches has been received since the 1st of June.

Dr. P. A. Young, of the Montana Agricultural Experiment Station, was a station visitor last week.

LIL
AUG 5 - 1935

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

July 10, 1935

No. 10

Personnel (June 26 - July 10) and Field Station (June 16 - 30)

- - - - -
PERSONNEL ITEMS

Dr. Charlotte Elliott spent the period from June 28 to 30 in the vicinity of Yonkers and Ithaca, N. Y., to inspect cooperative sweet corn plots for bacterial wilt.

Dr. H. B. Humphrey spent July 8 and 9 at Elk Creek, Va., to read the cooperative uniform rust nursery and to take notes on effects of barberry eradication.

Messrs. R. W. Leukel, A. G. Johnson, and W. J. Sando, on June 18, inspected a number of wheat fields in Fairfax, Prince William, Fauquier, Culpeper, and Orange counties, Virginia. Abundant leaf rust and a trace of loose smut were found in all fields inspected. Stinking smut and stem rust were found in but a few fields; only light infections appeared.

Only traces of scab infections were found, even though abundant perithecia of the scab fungus occurred on the old corn stalks. Apparently the cool weather in May and June kept down scab infections.

Wheat nematode infections were found in two fields, a trace in one and about 15 percent in the other. The latter field was near Manassas.

On the farm of T. R. Davis, Raccoon Ford, Orange County, a seed plot of about an acre of Arlando wheat was inspected for loose smut. The seed had been treated last fall by the modified hot water treatment at the United States Department of Agriculture Inspection House. The plot showed an excellent stand of wheat and no loose smut was found. This variety, which was developed by Mr. Sando as a selection from Mammoth Red, seems to be well adapted in that section. It has since been learned that the Arlando seed plot yielded a little more than 23 bushels an acre. The Fulcaster type of wheat grown on another part of the farm on somewhat poorer land yielded about 12 to 14 bushels an acre.

Dr. J. H. Martin returned to Washington on July 1 after a year's work with the Seed Stocks Committee at Minneapolis, Minn.

Messrs. M. A. McCall and M. T. Jenkins visited the cooperative experiments at Madison, Wis., Bloomington, Ill., and La Fayette, Ind., during the period from July 8 to 12. In general, the work is progressing very satisfactorily. In the small grain disease program at Madison, seasonal conditions have been particularly favorable for the development of leaf rust on both wheat and barley. Stem rust developed only sparingly on winter wheat, but if favorable conditions continue it probably will be more prevalent on the spring sown varieties.

Early in the season, conditions were not favorable for the development of scab on barley and wheat, but with the higher temperatures that prevailed during the latter part of June and early July sporulation and dispersion to spores from pustules are resulting in what promises a rather abundant epidemic.

Abundant rainfall has favored development of diseases and lodging in small grains and has prevented proper cultivation of corn, which is backward both because of late planting and unfavorable growing conditions, much of it being exceedingly weedy.

At Bloomington, Ill., in spite of the general abundant rainfall which has occurred during the season there was need for additional moisture at the immediate time of the visit. The weather had been favorable for cultivation, and corn in general was in very satisfactory condition except as it was backward because of delayed planting. Variable fertility conditions induced by the heavy rainfall earlier in the season have resulted in a very much spotted condition of the corn crop. Crown rust was developing abundantly in oats.

In Indiana the small grain harvest was well under way, winter wheat being mostly in the shock. Some grain had been threshed but the results were rather disappointing from the standpoint of grain yield. Straw yields were remarkably heavy, sufficient to support a 40- to 50-bushel grain return. Yields from 15 to 20 bushels instead were reported. Early infection with leaf rust, together with other unfavorable factors, probably was responsible for reduced yields. Scab on wheat is reported to be developing in southern Indiana.

RECENT PUBLICATIONS

Cytogenetics of Tetraploid Maize. L. F. Randolph. *Jour. Agr. Research* 50(7): 591-605, figs. 1-10. April 1, 1935. (G-953) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Department of Botany of the New York State College of Agriculture, Cornell University.)

Hybrid Sweet Corn. Glenn M. Smith. *Canning Age* 16(6): 243-245, illus. May 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Hybrids of Wheat, Rye, Aegilops, and Haynaldia. A Series of 122 Intra- and Inter-Generic Hybrids Shows Wide Variations in Fertility. W. J. Sando. *Jour. Heredity* 26(6): 229-232, figs. 3-4. June 1935.

Better Rice by Breeding. H. M. Beachell. *Rice News* 2(8): 24-25. June 1935.

MEMORANDUM FOR HEADS OF DIVISIONS

This Bureau has recently received from the General Accounting Office exceptions in connection with shipments made on Government Bill of Lading, both by freight and express. The exceptions have been made due to the fact that the correct routing had not been indicated on the Bill of Lading by the issuing officer prior to the making of the shipment. The General Accounting Office in taking these exceptions has referred to Paragraph No. 4 on the back of the Bill of Lading and also to Procurement Division Bulletin No. 4, dated March 26th. Both references cited by the General Accounting Office infer that Government representatives making shipments on Government Bills of Lading should make such shipments at the lowest rates available to the Government by the use of land grant or equalizing carriers.

In connection with the above, it is requested that your Field Representatives be instructed to obtain and use such routings wherever possible, and where it is not possible for them to obtain such routings in advance it may be necessary for them to furnish satisfactory explanation to the General Accounting Office.

Please give this matter your prompt attention.

Very truly yours,

(Signed) Geo. B. Holmes

Geo. B. Holmes,
Jr. Administrative Assistant.

GBH:g

GRADUATE SCHOOL ANNOUNCEMENT

The circular of information regarding the courses available in the Graduate School of the United States Department of Agriculture for the year 1935-36 is now ready. Those desiring information can obtain it in the Office of the Director, Dr. A. F. Woods, 4090 South Building, U. S. Department of Agriculture, Washington, D. C. A limited number of circulars will be forwarded to the Chief Clerks of the various Bureaus for distribution. The 40 courses offered include the following:

1. The Library, Its Organization and Use (2)
2. Elements of Personnel Administration (1-1/2)
3. Administrative Law (2)
4. Federal Jurisdiction and Procedure. Second Semester (2)
5. History of American Agriculture (2)
6. Recent Developments in Economic Theory (2)
7. History of Economic Thought (2)
8. Mathematics for Students of Economic Theory and Statistics (2)
9. Principles of Accounting (2)
10. Advanced Statistical Analysis (2)
11. International Trade (2)
12. Elementary Statistical Methods (2)
13. Colloid Chemistry, or Electrochemistry, or Phase Rule and Catalysis (2)
14. Soils - (Composition of Soils) (2)
15. Soils - "Their Morphology, Genesis and Classification" (3)
16. Glass blowing (1-1/2)

17. An Introduction to Organic Chemistry (2)
18. Basis Photography (2)
19. Plant Ecology (2)
20. Plant Diseases with Special Reference to Cause and Control (2)
21. Plant Anatomy (3)
22. Systematic Botany (2)
23. Plant Genetics (2)
24. An Introduction to Animal Parasitology (3)
25. Extension Seminars (2)
26. Editing Manuscripts on Agriculture, Home Making and Related Subjects (3)
27. Elementary German (2)
28. Intermediate Scientific German (2)
29. Elementary Russian (2)
30. Advanced Russian (2)
31. Elementary Spanish (2)
32. Advanced Spanish (2)
33. Scientific French (2)
34. Elementary Italian (2)
35. Advanced Italian (2)
36. Phonetics (2)
37. Elementary Dutch (2)
38. Advanced Dutch (2)
39. Elementary Portuguese (2)
40. Advanced Portuguese (2)

Figure in parenthesis indicates number of hours each week per semester.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

-0-

GEORGIA

GEORGIA COASTAL PLAIN EXPERIMENT STATION, TIFTON (Corn Breeding, H. S. Garrison)(July 2)

The past month was the driest June on record at this Station. The total rainfall was 0.13 inches. Fortunately, there were no extremely high temperatures. The maximum was 97° on the 13th, 14th, 15th, and 25th and the minimum 59° on the 7th. While some corn fields on the Station have suffered severely from the drought, the corn-breeding plots apparently have been injured but little. This droughty condition was strictly local.

Some corn breeding material grown from seed produced in the greenhouse at the Arlington Experiment Farm last winter and planted here May 1 is in very good condition at present. Some of the earlier crosses made from it have been tasseling for several days. Pollinating in the early and normal plantings is nearly completed now.

Mr. C. H. Kyle arrived at the Station on June 9.

Mr. L. H. Dewey, of the Division of Fiber Plant Investigations was a recent visitor.

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)(July 3)

The weather conditions in June were favorable for all crops. Temperatures were not unusually high, and the precipitation was well distributed, especially for cultivated crops. There were, however, no heavy rains to aid very much in the irrigation of rice.

The maximum temperature was 91°, and 90° or above was recorded on 8 days. The minimum temperature was 66°.

inches

The total precipitation of 3.37/ occurred on 10 days. The 25-year average for June is 4.42 inches.

The condition of Station plots, in the main, is good. Rice is healthy, and cultivated crops are in better condition than normal for this season of the year. Early seeded, early maturing rices are heading.

The condition of the commercial rice crop is above normal. Leaf spot disease has been noted in abundance only in certain small areas, principally where the soil is inclined to be alkaline. Some fields of early maturing rices will be ready for harvest the latter part of July.

Commercial cotton and corn crops give promise of producing satisfactory yields.

ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (July 2)

Holminthosporium leaf spot is abundant at Texas Substation No. 4, Beaumont, Tex., especially in the Holminthosporium nursery plots. Very little leaf spot was found at the Rice Experiment Station, Crowley, La., in that vicinity or in commercial fields, although a few spots were found at the Station the last of April.

Leaf smut (Entyloma oryzae) was collected from one field south of Crowley on June 25 and was found on a few leaves of Blue Rose collected at Beaumont by H. M. Beachell on June 28.

"White tip" is abundant on rice at the Station at Crowley and at Texas Substation No. 4 at Beaumont. It has been present at Crowley since the latter part of May. On June 25 it was found on Blue Rose, Acadia, Watari-bunc, Iola, Caloro, and Early Prolific. At Beaumont it first appeared about the 20th of June and was found principally on Blue Rose.

INDIANA

PURDUE UNIVERSITY AGRICULTURAL EXPERIMENT STATION, LA FAYETTE (Leaf Rusts, R. M. Caldwell)(June 25)

The heavy and frequent rains and dews during the entire month of June have been particularly favorable for the development of the common diseases of small grain crops. One of the heaviest epidemics of leaf rust of wheat on record has occurred in Indiana and neighboring States. Susceptible varieties, which include most commercial strains except Purkof, were generally 100 percent infected shortly after flowering. The leaves of such varieties have been dead for the past weeks. At present, stem rust of wheat is occurring as scattered infection areas in the breeding plots. Winter wheat is in excellent condition at the soft-dough stage.

The season has been very favorable for the selection of disease resistant hybrid strains in the nursery as a result of the severe leaf rust and heavy infection following artificial inoculation with bunt.

Spring wheat breeding plots are almost a complete failure, probably because of a combination of Hessian fly, chinch bug, and foot and stalk rot injury. In contrast, adjacent spring oats now headed are making an excellent growth and are in better condition at this date than they have been for several years past. Crown rust is now making its appearance as scattered pustules.

WISCONSIN

AGRICULTURAL EXPERIMENT STATION, MADISON (Wheat Scab, J. G. Dickson)(July 10)

The following have been recent visitors at the Station: Messrs. M. T. Jenkins, H. A. McCall, J. H. Martin, S. C. Salmon, and N. E. Stevens, of Washington, D. C., Mr. Fred G. Smith, of the Federal Grain Supervision, Bureau of Agricultural Economics, Chicago, Ill., and Dr. A. L. Smith, Morris-town, N. J.

Dr. R. M. Caldwell, associate pathologist, La Fayette, Ind., came on July 8 to spend a few days in taking notes on rust in the cooperative uniform cereal rust nursery.

Dr. G. A. Wiebe, of University Farm, Davis, Calif., arrived on June 27 and will remain for at least three weeks during which period he will assist in a survey of the north-central barley area for the study of scab, brewing quality, etc.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Auschus)(July 3)

The weather has been cool, cloudy, and wet in June. The total precipitation recorded for June was 4.82 inches, or 0.60 inch above normal. Rain occurred on 23 days, the amount ranging from a trace to 2.16 inches. The maximum temperature was 89° on the 13th and the minimum, 41° on the 4th.

Owing to the cool, cloudy, and wet weather, small grains have continued to make a heavy vegetative growth. Winter wheat is in the milk stage and spring wheat is just headed. Both crops are about one week later than normal.

Stem and leaf rust are present all over the State; traces of stem rust are reported in most cases. However, in some fields as high as 25 percent infection of stem rust has been reported on spring wheat in the late flowering stage. The weather has been ideal during the past week for the development of rust. There have been frequent rains accompanied by high temperatures and humidity.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccoli, J. B. Sieglinger)(July 1)

The last half of June was almost ideal for sorghum planting and development. All of the sorghums and broccocorn, with the exception of a July planting block, are planted. Good stands have emerged in from 3 to 5 days and thinning to stand is progressing as needed.

There have been no hot days to date and the soil apparently has enough moisture to carry the crops until the last of July.

The maximum temperature for the last half of June was 96° on the 20th, 24th, and 25th. The minimum temperature was 51° on the 22nd. A precipitation of 0.58 inch was recorded, or a total of 1.58 inches for June.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(July 1)

Harvesting of wheat, oats, and barley varieties in the nursery and in plots will be completed July 2 except for a rate-and-date-of seeding experiment with wheat, which will be combined about July 5. The wheat varieties in 1/47th-acre plots on cropped and fallow land were not harvested because of the very irregular growth brought on by the severe drought previous to May 13 and the rains after that date.

Dates of ripening of varieties in the nursery spread over nearly a 4-week period this year as compared with the normal ripening spread of approximately 1 week.

Threshing will be started early next week.

Dr. Hurley Fellows, of Manhattan, Kans., spent June 20 and 21 at Woodward studying foot rot of wheat.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding, A. M. Brumson)(July 2)

The rainfall at Manhattan in June totaled 6.79 inches; measurable precipitation was recorded on 20 of the 30 days. This was a continuation of conditions in May, when rainfall on 18 days totaled 7.42 inches. The weather in June was also unusually cool, the average maximum temperature being 82.0° compared to a normal of 86.4° and the 1934 average maximum of 98.2°.

Small grains made a remarkably favorable response to the first part of this 2-month period of damp, cool weather. During the last two weeks, however, considerable deterioration has resulted from rust and lodging and difficulty in harvesting is being experienced in many wet fields. All row crops are very weedy. Much of the corn and nearly all the sorghums are late because of wet fields at the normal planting time. Pastures, although unusually weedy this year, are recovering slowly from the severe injury experienced last year.

The worst flood in Manhattan in a generation occurred on the morning of June 4, when the Kaw River, fed by swollen tributaries, particularly the Republican River, left its banks and inundated the Kaw Valley. Crops on thousands of acres of the richest bottom land in Kansas were destroyed and considerable damage was done to bridges, highways, railways, and other improvements.

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston)(July 9)

In the southern Plains area weather conditions in May and June were almost the exact opposite of those for the same months in 1934. Beginning on May 9 at Manhattan heavy rains fell at intervals of a few days throughout the remainder of May and all of June. The total rainfall for the two months was 7.42 inches and 6.79 inches, respectively, or 3.13 and 2.33 inches above normal for those months. Rain fell on 19 days in May and 20 days in June. The rains were accompanied by disastrous floods in late May and early June and on June 4 the city of Manhattan was badly flooded by the Kaw River. For the first time on record all of the major rivers in Kansas

were out of their banks at one time during early June. As would be expected, the heavy rains were accompanied by temperatures considerably below normal.

Although cereal rusts were late in getting a start, owing to early spring drought and subnormal temperatures, they developed rapidly during June. Leaf rust of wheat was very severe throughout the Plains area and the eastern half of the states of Texas, Oklahoma, Kansas, and Nebraska were visited by an extremely severe stem rust infection. Even the hard red winter wheat varieties that are normally lightly attacked by stem rust were heavily infected, although maximum infection on them occurred too late for uniformly heavy losses. The soft red winter wheats probably were rather severely injured by the combined attacks of leaf and stem rust. Kawvale, a variety recently distributed in eastern Kansas, showed high resistance to leaf rust and low stem rust infections. The latter may have been partly due to the early maturity of the variety, however.

In the cereal rust nursery at Manhattan, no high resistance to stem rust was noted among winter wheats except in certain Hope hybrids. Selections of Hope x Mediterranean made by Dr. P. Mangelsdorf, of the Texas Station, were particularly promising in that respect. Among spring wheats nearly all common varieties were heavily rusted. Ceres had a disappointingly heavy infection, but Marquillo showed greater resistance. Certain durums such as Spelmar, Iunillo, and Kubanka 75 were severely rusted, while Pentad and Mindum were resistant. Spring wheat hybrids from several sources showed promising resistance. This was particularly true of those hybrid lines involving Hope or H-44 parentage.

At Manhattan, heavy stem rust infection followed crown rust after a few days and ruined many crown rust selections growing in the nursery. Dr. H. C. Murphy came to Manhattan on July 1 to study the oat rust situation and make rust readings.

Rust readings were made on wheats in the rust nursery, the agronomy nursery, the bunt nursery, and the Hessian fly nursery, and at the agronomy farm during the last two weeks of June and first week of July. Harvest, which began on June 9 in 1934, did not start until the last week in June of this year. The winter wheats in the rust nursery were harvested during the period of June 28 to July 2. Harvest is now practically finished and threshing will start within a few days.

Wheat stem rust inoculum continued to pile up in nearly all parts of Kansas in June, and early in July alarming amounts of rust were reported on late hard red winter wheat in the extreme northwestern part of the State. This is the first time complaints of stem rust damage have come from that section since 1923.

Both crown rust and stem rust were very heavy on oats in the vicinity of Manhattan. Crown rust infection was heavy throughout the eastern half of the State and many promising fields were practically destroyed by it.

Other cereal diseases were favored in their development by the wet weather of May and June. Speckled leaf blotch was prevalent on winter wheat throughout Kansas, while black chaff and glume blotch caused serious damage in certain localities of the south-central and eastern parts of the State. Considerable scab was seen in some wheat fields in northeastern Kansas on June 24 and basal glume rot also was fairly abundant. Halo blight and blade blight were abundant on oats in experimental sowings at Manhattan and smut infection was very heavy in some fields in the northeastern part of the State.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(July 2)

The weather during the last half of June was generally favorable for plant growth. Temperatures were somewhat lower than usual. The total precipitation was only 1.17 inches. The precipitation for the entire month was somewhat below average.

Wheat, oats, barley, and flax in experimental plots and nursery rows are heading. Early varieties of wheat, oats, and barley are fully headed. Late varieties are not yet first headed.

Cutworms have been fairly abundant and have cut off some flax plants but have done no serious damage. Grasshoppers are scarce, although a few small hoppers have been noted.

The first pustules of stem rust on wheat were noted June 21 after a thorough search for several days. The first pustules of leaf rust were noted June 24. The specimens were examined under the microscope to be sure of their identity. Infection with both rusts is now general on susceptible varieties although not yet heavy. In fields of Marquis and Ceres a few miles south of the Station rust may be found on nearly every handful of plants handled, although no heavy infection has yet been noted.

The maximum temperature was 88° on June 29 and 30 and the minimum 45° on June 18.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(July 2)

Moisture conditions have been good until the last week of June, when hot weather and lack of rain caused some of the lower leaves of grain to dry up. The rainfall for June has been slightly below normal. The total precipitation since December 31 has been approximately 9 inches, or about an inch more than the total for the entire year in 1934.

The cereal grains are growing rapidly and early varieties of spring wheat, oats, and barley are heading.

A slight amount of leaf rust is present on susceptible wheat varieties and a trace of stem rust was found on Hard Federation on June 29.

The writer attended the meetings of the Corn Belt Section of The American Society of Agronomy at University Farm, St. Paul, June 25 to 27 and noted that cereal crops in that vicinity are nearly as far advanced as in eastern North Dakota.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(June 29)

Favorable conditions for the growth of the cereal experiments have continued throughout June. The precipitation has been timely although not heavy. Temperatures have been a little below normal. Tillering has continued to be very heavy and some lodging may be anticipated if normal precipitation continues. Early wheat varieties are just coming into head.

At Langdon, the uniform winter wheat nursery, which survived about 50 percent, is fully headed.

Leaf and stem rust from natural infection were found on June 28 in the Fargo nursery and field plots and both are abundant. At present, conditions point to a heavier rust epidemic than in any recent years. Grasshoppers this year are very few as yet both at Fargo and Langdon, presumably because of the low temperatures that have prevailed.

The writer attended the meetings of the Corn Belt Section of The American Society of Agronomy at Minneapolis and St. Paul on June 25, 26, and 27.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)
(July 1)

The precipitation in June was 1 inch less than the normal for that month and cereal crops reflect this lack of moisture. All spring grains are heading short and the lower leaves of all oat seedlings have burned.

Two light hail storms hit the Station in June and slightly injured winter wheat and the earliest varieties of barley.

The maximum temperature for the month was 86° on the 28th; the minimum was 33° on the 5th and the mean 56°. The precipitation totalled 1.89 inches.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin)(July 2)

Winter grains near the Station are ripening rapidly, and combine harvesting will begin about July 10, which is about the normal date. Harvesting has already started on the shallow lands but yields probably will be very low. The yields of grain on the Station and on nearby farms should average about 40 bushels for the better varieties. Some varieties in the yield experiments are now ready for harvest.

There is a large acreage in the Columbia Basin that will be pastured or cut for hay. Rains came too late in the spring to save crops in the drier regions. Precipitation amounting to 0.57 inch on June 12 and 14 insured normal maturing of winter grains on the Station and came in time to prevent spring sown crops from drying out.

The total precipitation for June was 0.94 inch. Temperatures have been moderate.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward)
(July 1)

Since the first day of June there has been no precipitation in northern Utah. Winter wheat made an abundant early growth but now is suffering from drought. From early observations there appears to be an abundance of smut in the winter wheat. Although there sufficient irrigation water is available, spring wheat in general appears to be inferior to that of the past few years. Barley and oats have the appearance of producing high yields. All crops have a much taller and ranker growth than is usual for this section. Some fields of winter wheat show a growth of from 5 to 6 feet.

Dr. R. J. Evans, Mr. A. F. Bracken, and the writer attended the meetings of the Western Branch of The American Society of Agronomy June 18 to 20. After the meetings Mr. F. A. Coffman, of the Division of Cereal Crops and Diseases, visited the Logan station in the interests of the cooperative oat investigations.

Work at the Station is progressing nicely, although the crops are somewhat later than last year. All small grains have headed and the winter wheat should begin to ripen the middle of July.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel)
 (July 5)

The mean temperature for May was 69°, which is almost 10° lower than the 44-year average. The precipitation was 0.14 inch. The mean temperature for June was 82°, or very slightly above normal. Only a trace of rainfall was recorded for June.

The small grain harvests at Tucson, Sacaton, and Mesa were completed nearly 2 weeks ago.

The yields of barley varieties grown in three 1/34-acre plots at the Salt River Valley Experiment Station, Mesa, are as follows:

<u>Variety</u>	<u>C. I. no.</u>	<u>Av. yield (Bu. per acre)</u>
Beardless	4627	46.8
Vaughn	1367	101.4
Common Six Row	4625	75.9
Afghanistan	4125	69.6
Scarab	995	89.6
Trebi	936	86.4
Sacramento	4108	92.8
Union (Beardless)	--	78.8

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27

July 25, 1935

No. 11

Personnel (July 11 - July 25) and Field Station (July 1 - 15)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on July 14 for Ottawa, Canada, to confer with officials of the Dominion Department of Agriculture regarding varieties of seed flax. He will also visit St. Paul, Minn., Mandan and Dickinson, N. Dak., and Bozeman, Mont., in the interests of cooperative investigations with seed flax.

Mr. L. W. Kephart left Washington on July 17 for an extended trip in Ohio, Indiana, Wisconsin, Minnesota, South Dakota, Nebraska, Iowa, Kansas, Colorado, Wyoming, Utah, Idaho, Washington, Oregon, California, Nevada, Arizona, New Mexico, Texas, Mississippi, and Alabama to inspect proposed sites of bindweed eradication experiments and to consult with officials of State agricultural experiment stations on cooperative investigations of other weeds. Mr. Kephart will return about October 1.

Mr. R. W. Leukel, accompanied by Mr. W. M. Hurst, associate engineer, of the Bureau of Agricultural Engineering, spent July 9 at the seed warehouse of Messrs. T. W. Wood and Sons, Richmond, Va., to make arrangements for installing a seed treatment outfit designed by Mr. Hurst and perfected last winter at the cereal disease greenhouse at the Arlington Experiment Farm in cooperation with Mr. Leukel. Its outstanding feature is the manner in which the fungicidal dust applied is governed entirely by the weight of the grain flowing through the hopper. This is accomplished by means of an automatic alternate dumping device which at the same time operates the dust feeder.

The outfit was installed in the seed warehouse of T. W. Wood and Sons on July 16 at which time Messrs. Leukel and Hurst took data on its performance under actual warehouse conditions. After making a few short preliminary runs in order to make the necessary adjustments several hundred bushels of wheat were treated and data were taken on the quantity of dust used, the rate of flow of both wheat and dust, the thoroughness of application, and the performance of the outfit in general.

The data showed that the treater handled the wheat at the rate of 300 bushels per hour and applied the dust at almost exactly the recommended rate. The dust seemed to be well distributed on the seed and, on the whole, the performance of the treater was quite satisfactory.

Through the cooperation of Mr. W. P. Wood, Jr., the treater will be operated under actual warehouse conditions this fall in the treatment of about 30,000 bushels of small grain.

A public service patent has been applied for by the Bureau of Agricultural Engineering.

Mr. H. H. McKinney returned to Washington on July 19 from an extended trip that included stops in Illinois, Indiana, Georgia, Louisiana, California, Oregon, Washington, and Colorado where he conferred with workers on problems relating to viruses and virus diseases and examined virus diseases in the field.

Dr. V. F. Tapko left Washington on July 5 for Ithaca, N. Y., where he is taking notes on cooperative experiments with barley smut. He will be back about August 10.

RECENT PUBLICATIONS

Dissmination of Bacterial Wilt of Corn. Charlotte Elliott. Iowa State Coll. Jour. Sci. 9(3): 461-480, pls. 1-4. 1935.

Rice When Treated for Milling Acquires Desirable Qualities. Jonkin W. Jones and John W. Taylor. U. S. Dept. Agr. Yearbook of Agr. 1935: 286-289, fig. 55. 1935.

Bacterial Wilt of Corn Cribated by Use of Resistant Strains. Charlotte Elliott. U. S. Dept. Agr. Yearbook of Agr. 1935: 126-129, figs. 2-3. 1935.

The Minimum in the Gamma Function. W. Edwards Deming and Clarence G. Colecord. Nature 135: 917. June 1, 1935.

The Effect of Light on the Initiation of Rust Infection. Helen Hart and I. L. Forbes. Phytopathology 25(7): 715-725, fig. 1. July 1935. (Co-operative investigation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Personnel Circular No. 16.

July 17, 1935

INSTRUCTIONS GOVERNING EMPLOYEES OF THE DEPARTMENT
TRAVELING IN CANADA ON OFFICIAL BUSINESS

The Department of Agriculture has been advised by the Department of State of the receipt of a request from the Canadian Government for a list of American officials stationed in Canada, this list being desired in connection with applications received from time to time from American officials traveling in Canada for courtesies and facilities in pursuance of their official duties.

The Department of Agriculture has no officials stationed in Canada, but the Department of State has requested that it be advised in the future when officers of this Department proceed to Canada on official missions, and that they be instructed promptly to establish contact with the American Legation in Ottawa and refer to that Legation questions relating to any privileges or immunities to which they may be themselves entitled, before taking independent action with the Canadian authorities.

It is directed that all employees of this Department be advised of the request of the State Department, and when officials of this Department contemplate traveling to points in Canada, a letter should be prepared in the bureau to the Secretary of State for the signature of the Secretary of Agriculture, giving the names and designation of the officials concerned, and the point or points in Canada which they will visit.

(Signed) W. W. Stockberger

Director of Personnel.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural Experiment stations or other agencies)

LOUISIANARICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, M. E. Jodon) (July 16)

The highest temperature since July 1 was 96° and the minimum 71°. Dry north winds have occurred during the past week, evaporating water from the fields quite rapidly. Farmers will begin to harvest Early Prolific rice sometime next week.

The appearance of the nursery has improved noticeably in the past two weeks. A number of early selections have begun to head. Leaf spot infection is light but a local epidemic was noted in an unthrifty field north of Crowley.

INDIANAPURDUE UNIVERSITY AGRICULTURAL EXPERIMENT STATION, LAFAYETTE (Corn Rots and Metallic Poisoning, J. F. Trost)(July 17)

Corn prospects have improved rapidly this month. Although very little corn was planted until the last week in May, tassels are now showing on these first plantings. Much of the acreage received no cultivation until the completion of wheat harvesting.

Mr. G. M. Smith reports that hand pollination operations are well under way in the inbreeding blocks of the sweet-corn nursery. A mild epidemic of bacterial wilt is present again this year. About 10 percent of the plants of wilt susceptible strains were showing evidences of wilt infection by June 20. Flea beetles were prevalent throughout the plots at that time. Conditions have been so favorable for the growth of the sweet-corn plants that very little killing has occurred from wilt.

The sweet-corn hybrid strain trials were subjected to over-flow on July 2. The over-flow areas in these plots showed an outbreak of bacterial stalk rot, the following week.

Corn smut appeared much earlier than usual. On some of the plots in a very high state of fertility, 1 percent of the plants were killed by seedling infections with smut.

In the vicinity of La Fayette, a trace of bacterial wilt is appearing in the very early maturing strains of dent corn. At North Vernon, Ind., one strain of medium maturing dent corn displayed distinct leaf streaking and the presence of bacterial ooze in the bundles on 0.8 percent of the plants. Leaf streaking following injury from white grubs and from the southern corn root worms is fairly common, but may be readily distinguished from bacterial invasions in dent corn.

Drs. M. A. McCall and M. T. Jenkins were here July 11 and 12 to confer on physiological and pathological phases of the cooperative program.

MINNESOTAAGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Aussermus)(July 17)

The weather has been ideal for the development of stem rust on wheat during the first half of July. Most of the fields of winter wheat were too far advanced to be seriously injured by stem rust; spring wheat is seriously injured, however. In the southern part of the State, where Marquis is the commonly grown variety of spring wheat, many fields do not look as if they would be worth harvesting. Ceres also is severely infected but probably will not be injured so much as Marquis. Scab is prevalent in many fields also. Stem rust is present in epidemic condition all over the State.

Excellent notes on stem and leaf rust and scab and black chaff are being obtained on all spring wheat varieties grown in the experimental plots. Many of the new hybrid varieties are very resistant to stem and leaf rust.

Winter wheat at the Southeast Experiment Station, at Waseca, was being harvested yesterday. Harvesting of winter wheat at University Farm will begin tomorrow.

The weather was hot and the moisture supply was sufficient during the first half of July. The precipitation was 2.22 inches. The maximum temperature was 93° on July 3 and the minimum 58° on July 14.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccoli, J. B. Sieglinger) (July 15)

So far July has been typically hot and dry. There is enough moisture in the soil and subsoil to supply the sorghum crops this month but more will be required to produce average grain yields.

Nearly all of the project has been thinned and cultivated, the exception being the July 10 seeding of quick maturing varieties, which is just emerging. A few of the earlier sorghums are showing signs of booting.

The maximum temperature for the first half of July was 108° on the 11th, the minimum 62° on the 13th. The precipitation was 0.27 inch in two showers.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (July 16)

The threshing of the plot and nursery material is nearly complete. Yields will be low, although the grain of some varieties is surprisingly plump. The weather has been dry and warm and almost ideal for threshing.

Considerable shattering is evident in the nursery guard rows standing since harvest. It is expected that shattering notes to be taken will show some interesting varietal differences.

Mr. Ricardo Krugle of Argentina was a Station visitor on July 5 and 6.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Foot Rots, Hurley Fellows) [July 12]

Recently the writer took a trip through the central and south western part of Kansas and the northwestern part of Oklahoma to make observations on the dry-land and take-all foot rots of wheat.

It appears that the severe drought and heat of last summer did not diminish the prevalence of take-all in infested soil, for a considerable number of badly diseased fields were found. This confirms the results of greenhouse experiments that have been run for several years. As was expected, rotation has helped to keep down the severity of the disease.

As was true last year, the dry-land foot rot has advanced far east of its usual boundary and is undoubtedly cutting down yields around Manhattan. The weather in the ordinarily humid regions both this year and last approached the dry-land condition.

The date-of-seeding plots at Woodward, Okla., and Ashland, Kans., illustrated this year, as they did before, that a retarded date of seeding diminishes the severity of dry-land foot rot.

From the standpoint of wheat diseases, the greatest excitement this year has been caused by a severe epidemic of stem rust. Ordinarily, in central Kansas stem rust is a minor matter. However, this year it is a major factor among diseases. However, dry-land foot rot, the symptoms of which may be overlooked even by pathologists, is aiding stem rust in causing loss.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Briandade, Jr.)(July 16)

Development of an extremely severe stem rust epidemic on wheat and heavy rainfall, causing flooding of lowlands adjoining the Heart River, are the highlights of the news during the first half of July.

Stem rust infection, which was generally distributed by July 3 on all susceptible varieties, increased slowly during the next 10 days on leaves and leaf sheaths. Between July 12 and 15 a much more rapid increase in rust was noted, culminating in an extremely heavy infection breaking out on the neck of plants in all susceptible varieties. The wheat plots, nurseries, and fields around Mandan all show a similar heavy rust infection. General infection was noted on Ceres and other Marquis-Kota hybrids although not so heavy nor with pustules as large as those on Marquis. Supreme shows excessively heavy infection so that the plots stand out as uniformly dark red in contrast to the prevailing green of neighboring resistant varieties. Comet and Reward are nearly as severely infected as Supreme. Thatcher has much less rust than Ceres. Kubanka durum shows the least rust in the plots to date. Hope, H-44, and varieties of which Hope H-44 were parents in general have very little rust. All varieties of barley are heavily infected with stem rust. Slight infection of some oat varieties with both stem and crown rust has also been noted.

Rains during the first 10 days of July amounted to a total of 4.14 inches, of which 3.13 inches were recorded on July 8, 9 and 10. No further rainfall has occurred since July 10. The Heart River rose about 10 feet, inundating hay land, field crops, and gardens near the Heart and Missouri Rivers. Many families in lowlying parts of Mandan were driven from their homes and were cared for by relief agencies for several days while the water remained over the floors of their houses. A high dike, recently completed, prevented the flooding of a much wider area in Mandan, including the municipal park, golf links and many gardens.

Crops have developed rapidly. Oats and barley in plots and wheat in plots and nurseries are all fully headed. Sixty-Day oats are beginning to ripen. Early flax varieties in plots and nurseries are nearly through blooming. Flax-wilt, which was late in developing, has now caused practically complete mortality of susceptible varieties in the flax-sick soil nursery. No flax rust has been noted to date. Grasshoppers are becoming numerous though smaller than usual at this time of year.

A farmers' field day at the experiment station July 11, under the direction of H. L. Walster, Dean and Director of the Extension Division of the North Dakota Agricultural College and county agents of the Missouri Slope area, was well attended considering the impassable roads over much of this area. The gathering was featured by timely talks on pressing agricultural problems of this region and inspection of crops and horticultural, aboricultural, and soil erosion projects.

Station visitors included J. Allen Clark, H. K. Hayes, and Wallace Butler. The maximum temperature was 98° on July 2 and the minimum 58° on July 11 and 12.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(July 13)

Frequent rains, totaling 2.72 inches from July 1 to 13, caused great improvement in the condition of all cereal crops at the Substation and in this district.

Hot weather has prevailed since the last week in June. Grains are maturing more rapidly than during the cooler weather in June but harvest will be later than for several years. Nearly all varieties of small grain are fully headed.

Leaf rust is becoming abundant and during the past 3 days the prevalence of stem rust has increased rapidly. The weather during the next week will determine whether much rust injury will occur. Wind and hail in local areas have damaged grain in this part of the State.

Nursery rows are being trimmed and leaf rust notes are being taken.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(July 15)

The precipitation in June and for the first half of July has been below normal at Fargo, but crops still look very well and experimental projects in nursery and plots are going nicely. Differential responses to the moisture deficiency are apparent, but rains have been frequent enough so that nothing has suffered and indications are that yields will be well above average. Over most of the State except at Fargo the rainfall has been heavier than the average especially during the past 6 weeks. At Langdon, the precipitation for the first half of 1935 has been about 1 inch above normal, while at Fargo it is about 3 inches short of normal.

Stem rust is developing rapidly and at Fargo will cause noticeable injury to the test weight of susceptible varieties. In the nursery, susceptible and resistant strains are clearly distinguishable even though the wheat will not mature for 3 or 4 weeks. Durum wheats will likely be ready for harvest about August 10.

The nursery and wheat plots at Langdon have made the heaviest growth since 1928, the first year nursery work was conducted there. Stem rust infection there is late but heavy and probably will develop into a heavy epidemic before the durum harvest, which will not be before August 15. Lodging is probable in the nursery at Langdon and possible at Fargo.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(July 16)

The condition of all cereal crops has grown steadily worse since the 1st of July, owing to the lack of rainfall. The precipitation for the first 2 weeks in July was only 0.32 and high temperatures prevailed over the greater part of this period. Some fields of spring grain have been burned beyond recovery and the rest can make only a short crop. Winter wheat has started to fill and will need additional moisture before maturity.

The cerealsplots have held up better than the commercial fields, but the spring grain nurseries will be very short and uneven in height. The barley nursery is ripening prematurely and some of the earlier varieties will be harvested within a week.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27

August 10, 1935

No. 12

Personnel (July 26 - Aug. 10) and Field Station (July 16 - 31)

PERSONNEL ITEMS

Dr. M. A. McCall left Washington August 9 on a trip in the West that will include stops in Illinois, Wisconsin, Minnesota, North Dakota, Montana, Wyoming, Colorado, Nebraska, and Iowa. He will inspect cooperative cereal field experiments and discuss future plans with the personnel of the Division and with officials of cooperating State agricultural experiment stations.

Mr. T. R. Stanton left Washington on July 29 for a trip in the interests of cooperative oat investigations in Pennsylvania, Ohio, Wisconsin, Minnesota, Idaho, South Dakota, Illinois, North Dakota, and Montana. He will assist in the harvest of breeding and identification nurseries and study the oat crop as grown under farm conditions. He will also confer with officials of agricultural experiment stations in the States mentioned.

RECENT PUBLICATIONS

Report of the Rice Experiment Station, Crowley, Louisiana, for the Years 1933-1934. J. Mitchell Jenkins. In Bienn. Rept. Rice Expt. Sta., Crowley, La., 1933-1934: [5]-15. [1935.] (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Improving Rice Varieties. N. E. Jodon. In Bienn. Rept. Rice Expt. Sta., Crowley, La., 1933-1934: 15-18. [1935.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Rice Diseases. E. C. Tullis. In Bienn. Rept. Rice Expt. Sta., Crowley, La., 1933-1934: 19-20. [1935.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Resistance and Susceptibility of Corn Strains to Second Brood Chinch Bugs. J. R. Holbert, W. P. Flint, J. H. Biever, and G. H. Dungan. Iowa State Coll. Jour. Sci. 9(3): [413]-426, pls. 1-4, fig. 1. April 1935. 3. Symposium: Applied Botanical Research on Maize. The Iowa Corn Research Institute. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Illinois State Natural History Survey and the Illinois Agricultural Experiment Station.)

Loss Mutations in Maize. L. J. Stadler. Iowa State Coll. Jour. Sci. 9(3): [427]. April 1935. (Abstract of paper presented in Symposium on Applied Botanical Research on Maize. The Iowa Corn Research Institute.) (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Department of Field Crops, University of Missouri.)

The Effect of Inbreeding and of Selection within Inbred Lines of Maize upon the Hybrids Made After Successive Generations of Selfing. Merle T. Jenkins. Iowa State Coll. Jour. Sci. 9(3): [429]-450, figs. 1-4. April 1935. 3. Symposium: Applied Botanical Research on Maize. The Iowa Corn Research Institute. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Farm Crops Subsection, Iowa Agricultural Experiment Station.)

Effect of Temperature and Light on the Development of the Uredial Stage of *Puccinia graminis*. Leonard W. Melander. Jour. Agr. Research 50(11): 861-880, figs. 1-5. June 1, 1935. (G-967). (Cooperative investigations between the Division of Cereal Crops and Diseases and the former Division of Barberry Eradication, Bureau of Plant Industry, United States Department of Agriculture, and the Agricultural Experiment Station of the University of Minnesota.)

NOTE REGARDING MANUSCRIPTS

When employees of the Division of Cereal Crops and Diseases, whether in the field or in Washington, desire approval for publication of a manuscript or for presentation of an article either at a meeting or over the radio, it is necessary to submit a ribbon copy and two carbon copies of the manuscript to the Principal Agronomist in Charge of the Division. When the Chief of the Bureau has given his approval the ribbon copy is sent back to the Division to be returned to the author and one carbon copy is transmitted to the Director of Information of the Department. (See Administrative Regulations of the Department Para. 604.) The second carbon copy is filed in the Division. Much delay and needless correspondence will be avoided by keeping in mind this requirement.

A. H. D. K.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

VIRGINIA

ARLINGTON EXPERIMENT FARM, ROSSLYN (Small Grain Agronomy, J. W. Taylor)
(July 30)

Threshing of the small grains has been completed. Yields of all fall-sown grains were above the average. No serious injury from low temperatures occurred, and the cool spring and well-distributed precipitation were especially favorable to growth. Unfavorable factors were heaving, a severe attack of barley mildew, and heavy lodging of both barley and wheat. The "flats", used for the first time for the plot experiments, were satisfactory despite the rank straw growth and the relatively poor yield of the check varieties.

The yields of the rye varieties are presented in the following table. Balbo showed excellent adaptation vegetatively, but its grain yield was low.

Yield of rye varieties grown in 1/80th-acre plots at the Arlington Experiment Farm.

<u>Variety</u>	<u>C.I.no.</u>	<u>Yield (Bu. per acre)</u>
Abruzzi	40	65.7
Roson (Mich. '34)	--	64.0
Star	--	60.3
Rimpau	126	57.1
Von Runkel	133	55.0
Do.	173	55.0
Prolific (spring)	--	51.4
Roson	195	50.3
Balbo	--	49.0
Abruzzi (S. C. '34)	--	42.1

A strain of Tennessee Winter barley, several days later than typical Tennessee Winter, was the highest yielding variety. The four hooded varieties were all poor yielders. Stripe was severe in the hooded types.

Yield of winter barley varieties grown in duplicate 1/80th-acre plots at the Arlington Experiment Farm.

<u>Variety</u>	<u>C.I.no.</u>	<u>Yield (Bu. per acre)</u>	<u>Gain or loss in bushels as compared with check plots</u>
Tennessee Winter (Va.)	6034	75.3	18.6
Composite Cross (new)	5530	71.3	11.6
Tennessee Winter	3546	67.1	10.4
Escaw	4690	64.5	7.8
Composite Cross	4116	67.3	7.6
Orcel	351	68.6	7.5
Han River	2163	64.4	4.7
Mechanical Mixture	4115	64.7	3.6
Tennessee Winter	3534	62.4	2.7
Do.	257	63.2	2.1
Alaska	4106	56.5	-4.6
Smooth Awn no. 203	--	41.7	-15.2
Beardless no. 6	2746	36.7	-20.0
Wisconsin Winter	2159	61.5	-
(Av. of 7 check plots)			

Yield of winter barley varieties grown in single 1/80th-acre plots at the Arlington Experiment Farm.

Variety	C.I.no.	Yield (Bu. per acre)	Gain or loss in bushels as compared with check plots
Kentucky Smooth Awn 11	--	56.7	+ .2
Hooded scl. no. 6	--	27.5	-42.5
Hooded (Woods)	--	31.7	-38.3
Gaddis (hooded)	6003	35.8	-34.2
Smooth Awn no. 1	--	48.3	-21.7
Nekano Wase no. 68	--	53.5	-16.5
Nekano Wase no. 33	--	54.3	-15.6
Smooth Awn no. 86	--	44.5	-12.4
Nekano Wase B	--	61.2	-8.8

All but four varieties of wheat outyielded Purplestraw wheat (C. I. 1915). Red Winter and Leapland, a selection of Leap made at the Maryland Agricultural Experiment Station, were especially good. A soft red selection, T 47-55, which has resistance to local bunt collections appeared promising.

Yield of winter wheat varieties grown in triplicate 1/80th-acre plots at the Arlington Experiment Farm.

Variety	C.I.no.	Yield (Bu. per acre)	Gain or loss in comparison to Purplestraw
Red Wonder	5780	43.9	+ 5.9
Leapland	--	41.9	+ 3.3
Fulcaster	1945	41.5	+ 3.1
Dixie	10070	41.2	+ 3.1
Forward	6691	42.1	+ 2.7
Gasta	11398	41.8	+ 2.4
Arlande	10069	40.3	+ 2.2
Leap	4823	40.7	+ 2.1
Fultz	1923	40.1	+ 1.7
Mittany	6882	39.7	+ 1.5
Genesee Giant	1744	39.3	+ 1.3
T 47-55	--	40.6	+ 1.2
Trumbull	5657	41.8	+ 1.0
V. P. I. 131	10047	38.7	+ .6
Wharten	10071	39.7	+ .3
Missouri Bluestem	1912	37.9	+ .3
Purplestraw	1957	38.6	+ .2
Poolc	1979	38.1	- 1.0
Shephord	6163	36.5	- 1.5
Dictz	1981	35.8	- 2.8
Mammoth Red	2008	34.9	- 3.5

Despite an estimated heading loss of 40 percent, the winter oat crop made unusually high yields. Fulghum (C. I. 703), the variety with the poorest yield record, was the best, and Lee, one of the highest yielding varieties, was about the poorest.

Yield of winter oat varieties grown in duplicate 1/80th-acre plots at the Arlington Experiment Farm

<u>Variety</u>	<u>C. I. no.</u>	<u>Yield (Bu. per acre)</u>	<u>Gain or loss in comparison to check</u>
Fulghum	708	84.6	+ 26.4
Winter Turf	541-4	83.1	+ 24.6
Culberson	273	78.2	+ 20.0
Fulghum (winter type)	2498	74.0	+ 15.8
Custis	2041	72.7	+ 14.5
Winter Turf	431	70.2	+ 12.0
Sporon	2506	71.1	+ 7.6
Randolph	2275	70.7	+ 7.2
Fulghum (winter type)	2499	68.3	+ 4.8
Coker	3056	63.0	- .5
Lee 1/	2042	61.8	--

1/ Average of five check plots.

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (Aug. 3)

Weather conditions in July continued to be favorable. The highest temperatures were 95° on the 8th and 11th and 96° on the 9th and 10th. On 10 days the maximum was less than 90°. The low minimum was 71° on the 15th and 16th. The highest minimum was 79° on the 9th. The precipitation was 4.95 inches, as compared to a 25-year period of 6.19 inches.

According to local reports, farmers are harvesting Early Prolific about 10 days earlier than usual. It is said to be the earliest harvest on record. While much rice was sown in March this year, early seeding does not entirely explain the exceptionally early maturity. In the date-of-seeding experiment, Early Prolific sown March 18 was harvested July 29. Last year it was sown March 14 and harvested August 9. Many of the selections in the nursery are also 10 days earlier than last year, but this is at least partly because of earlier seeding.

Leaf diseases are not serious enough to do much damage, although on land in a low state of fertility the leaves are badly spotted. "White tip" symptoms are prevalent in Station plots of susceptible varieties.

The nursery is in the best condition that it has been in any of the three years the writer has been stationed here. Artificial hybridization is under way. Blue Rose and C. I. 4700 headed a month after a short-day treatment was begun. This permitted crossing with early varieties. Perennial rice is being brought into flowering in the same way. This rice does not blossom here at all unless the season is exceptionally long.

In the vernalization test Edith is heading uniformly in all treatments.

ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (Aug. 2)

Holminthosporium leaf spot is not much more prevalent at the Rice Branch Experiment Station at Stuttgart than it was in the early part of July. Stem rot was found on an early sowing of Early Prolific and on a large number of Shoened plants in the varietal experiment. Infection apparently occurred about the middle of the month when the rice was irrigated following a drainage period that began July 7.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (July 31)

Weather conditions in July were favorable for the growth and maturing of feed crops. The precipitation was 3.08 inches, which is 0.93 inch above normal. The 0.93 inch that fell on July 17 and 18 came just in time to prevent damage from drought to feed crops and corn, which was maturing. Temperatures were about normal, the maximum being 103° and the minimum 65°. A period of extremely hot weather prevailed from July 6 to 13. The mean humidity for the month was nearly 9 percent above normal, which has made the heat rather oppressive. The evaporation for the month was considerably below normal.

All small grains were threshed in July. Wheat made very low yields of very low quality grain. Barley produced good yields, one of the new selections outyielding standard varieties by a good margin. Oats produced much higher yields than expected, considering the damage from rains and rotting in the shock. Quality was rather low owing to weather damage. Yields of grain in field plots are as follows:

Yield of winter wheat varieties grown in replicated 1/55th-acre field plots at Texas Substation No. 6, Denton, Texas, 1935

Variety	Number C.I. Tex. Sta.	Winter surviv- al Percent	Rust		Yield (Bu. per acre)	Test weight per bu. Lbs.
			Leaf Percent	Stem Percent		
Denton	8265	9236	32	13	40	2.7
Mediterranean	10086	3015-81	25	48	45	2.0
Do.	10085	5933-20	63	25	57	6.6
Do.	11525	5933-23	17	6	85	4.5
Do.	11526	5933-34	27	13	68	8.3
Do.	-	5933-38	18	6	73	8.0
Do.	11587	-	52	4	99	3.4
Sutton	10053	15832	40	38	58	3.7
Fulcaster	6171	7082	40	45	48	4.9
Harvest Queen	6199	15837	62	99	55	4.5
Kawvalo	8180	12577	50	4	20	7.6
Clarkson	8858	20100	68	55	55	8.6
Quivira	8836	15833	67	13	7	13.1
Blackhill	6251	7172	53	70	15	6.9
Kanrod	5146	11763	82	75	7	8.8
Tennarq	6936	12578	67	33	25	6.7
Nebraska No. 60	6250	15835	83	90	32	5.0
Kharkof	142	16830	90	85	9	8.7
Turkey sel.	10016	20374	78	99	8	6.9
Early Black- hill	8856	15838	42	58	3 ¹ / 4	1.1

1/ Escaped stem rust because of carliness.

Yield of barley varieties grown in replicated 1/55th-acre field plots at Texas Substation No. 6, Denton, Texas, 1935

Variety	Number		Loose smut P.ct.	Stem rust P.ct.	Yield (Bu. per A.)	Test weight per bu. Lbs.
	C.I.	Tex.Sta.				
Tennessee Winter	--	15825	T	25	28.2	34
Do.	3545	15826	T	20	26.1	33
Do.	--	18561	S	20	27.4	33
Wisconsin Winter	2159	15839	T	35	23.5	32
Hybrid II-31-84	--	-	0	20	33.5	32
Tennessee Winter (Local Winkelmann)	--	-	0	5	40.0	38
Smith S-31-51	--	-	0	5	48.4	40
Finley	5901	12576	0	5	35.6	37

Yield of spring oat varieties grown in replicated 1/55th-acre field plots at Texas Substation No. 6, Denton, Texas, 1935

Variety	Number		Rust		Smut P.ct.	Leaf Rust P.ct.	Ergo- ing P.ct.	Yield (Bu. per A.)	Test weight per bu. Lbs.
	C.I.	Tex.Sta.	Leaf	Stem					
Nortex	2382	9235	65	20	2	24	24	76.7	28
Texas Red Rustproof	2503	1118-69	65	15	T	30	77.3	29	
Do.	--	1415-12	65	15	T	20	86.7	28	
Do.	--	2805-39	65	15	T	24	73.3	27	
Do.	--	2805-43	65	15	T	30	82.1	27	
Do.	--	6217-43	65	20	T	20	78.4	28	
Appleton Rustproof	--	1401-24	65	10	T	24	81.7	27	
Ferguson 922	2150	9400	65	15	T	24	81.6	27	
Frazier	2381	9234	100	T	8	30	75.1	30	
Winter Fulghum	2498	15827	100	10	2	38	56.3	26	
Norton 3	2909	18564	100	T	4	25	64.3	29	

WISCONSIN

AGRICULTURAL EXPERIMENT STATION, MADISON (Wheat Scab, J. G. Dickson) (Aug. 7)
Miss E. Singruen, Dr. F. M. Dupont, and Dr. Louis Ehrenfeld, members of
the Wahl-Henius Institute of Chicago, Ill., were visitors at the Station on July 25.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding,
E. R. Auschus) (Aug. 3)

Harvesting of the varieties of spring and winter wheat, oats, and barley
in the nursery and field plots has been completed. Spring wheat was ripened
prematurely by heat and dry weather.

A trip was made through southern and western Minnesota. Ceres and Marquis
wheats were so badly damaged by stem rust that many fields are not being harvested.
Thatcher, Marquillo, and Hope were not injured by stem rust in this area, but
these varieties show some shriveling of the grain owing to lack of moisture dur-
ing the ripening period. Barley and oats suffered also from lack of moisture.
Yields of Ceres and Marquis of 5 to 10 bushels per acre of 40-lb. wheat are be-
ing reported.

Winter wheat in southern Minnesota is yielding from 20 to 36 bushels per acre.

Barley and oats are injured also by the heat and lack of moisture during the ripening period.

Corn in general is in good condition.

The maximum temperature for the month of July was 98° recorded on July 27th; the minimum was 60° on the 7th. The precipitation for the month was 2.59 inches, which was 1.14 inches less than normal.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger)(July 31)

The weather of the last half of July was that of a typical Oklahoma summer, hot and dry. The heat was not so intense as in 1934 but sorghums wilt during the heat of the day and are turgid the following morning.

The project has been kept in good condition, but it is apparent that sorghums and broomcorn cannot make satisfactory yields on stored moisture alone on our light soils. An effective rain within the next week or two would mean a good crop; without rain, conditions will soon approach those of 1934 which are the worst on record.

Heading is progressing in the varietal nursery and heads are being bagged for seed. The regular feterita plots in the June 8 varietal series are heading as is also the Black Spanish broomcorn in the May 29 varietal block.

The maximum temperature for the last half of July was 102° on the 28th; the minimum was 65° on the 18th. The precipitation was 0.03 inch, or a total of 0.30 inch for the month of July.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(July 31)

Threshing of the nursery varietal material is completed and threshing of plant selections is under way.

Yield of the 15 highest yielding winter wheat varieties grown in quadruplicated triple rod rows at Woodward, 1935.

Variety or Hybrid	C.I.no.	Woodward nursery no.	Yield (Bu. per acre)
Tennmarq x Nebraska No. 28 (Kans. sel. 304408)	--	1094	22.6
Danne's sel. H-59-C	--	1112	21.9
Kanred x Kanred-Marquis	11592	1105	21.7
North Powder	--	1004	21.7
Blackhull	6251	14	20.7
Tennmarq sel.	--	1080	19.9
Superhard sel.	8054	15	19.4
Kanred x Marquis (Kans. No. 2612)	--	1076	19.1
Kanred x Marquis	10090	1077	19.1
Danne's sel. H-68-B	--	1113	19.0
Kawvale x Tennmarq	11669	1109	18.8
Redhull	11534	19	18.7
Oro x Fulhard	11579	1107	18.3
C. I. 8034 x Tennmarq	11668	1108	18.2
Kanred x Marquis (Kans. No. 2639)	--	1073	18.1
Kanred ^{1/}	5146	16	14.8

1/ Average of 44 checks.

Yield of spring barley varieties grown in triplicated triple rod rows at Woodward, 1935

Variety	C. I. no.	Yield (Bu. per acre)
White Smyrna	910	44.6
Sandrel	937	44.5
Trebi	936.	42.9
Danne's sel. 113 D. K. Hybrid	-	39.8
Manchuria	2330	38.6
Meloy	1176	35.8
Flynn	5911	35.3
Atlas	4118	34.9
Vaughn	1367	33.7
Stavropol	5913	33.4
Club Mariout	261	33.3
Franklin Malt	5915	32.1
California Mariout	1455	32.0
Glabron	4577	31.3

Twenty varieties of winter barley were grown in 1935. Eighteen were completely killed by low temperatures. Michigan Winter and local winter varieties showed low survival percentages.

Yield of the 10 highest yielding spring oat varieties grown in triplicated triple rod rows at Woodward, 1935

Variety or Hybrid	C. I. no.	Woodward nursery no.	Yield (Bu. per acre)
Danne's Sel. no. 94	--	--	32.6
Fulghum	--	H-C 77	31.5
Carlton	2378	--	31.1
Fulghum	--	H-C 713	31.1
Burt x Sixty-Day	--	H-C 757	29.2
Fulghum	--	H-C 719	29.3
Frazier	2391	--	28.6 ^{1/}
Fulghum	708	--	28.2 ^{1/}
Fulghum x Markton	3160	--	28.1 ^{1/}
Fulghum	--	H-C 75	27.9

^{1/} Average of 6 replications.

Of 26 varieties of winter oats sown in 1934, only one plant survived the winter.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding, A. M. Brunson)
(Aug. 1)

The past month at Manhattan has been drier than and almost as hot as July 1934. The rainfall totaled only 0.04 inch in two negligible showers on the 4th and 24th. The mean maximum temperature for the month was 100.4°, which is 6° less than the mean maximum of last year. The absolute maximum was 107° on the 28th and 31st. The mean temperature for the month was 86.6° compared to 90.2° for last year and the normal mean of 78.6°. There have been 18 days when the maximum temperature was 100° or over.

All crops are suffering from lack of moisture. Corn held on remarkably well until about July 25 but during the last 5 days has deteriorated rapidly. The open pollinated varieties in the yield experiments range from badly injured to nearly dead. Some of the hybrids still look remarkably well although no doubt they have been considerably injured even if rains should come tonight. The earliest lines in the selfing nursery have set ears and may produce viable seed if rains come soon. The later inbreds are badly injured and many cannot possibly reproduce this year.

Sorghums are rolling badly and standing still, waiting for more favorable conditions. Practically no new growth has started on alfalfa fields since the second crop of hay was cut 2 weeks ago.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Aug. 1)

The prevailing humid, hot weather during the last half of July caused rapid development and ripening of crops. Harvesting of the cereal varietal plots began with the early barley varieties July 24 and ended with the late wheat and oat varieties July 31. Harvesting of the whoat nurseries began July 30 and should be completed by August 3.

Stem rust continued to develop and attacked the amber durums severely. Striking contrasts in rust susceptibility, causing almost total failure of grain in some varieties, and resistance, accompanied by well-filled heads and plump kernels in other varieties, were outstanding in the wheat plots and were noted with great interest by many farmers and other visitors at the Station. Supreme showed the greatest rust damage and Marquis was almost as severely injured. Ceres and other Marquis-Kota hybrids were only a little less severely injured than Marquis. Reward, though heavily rusted, escaped severe damage. Thatcher showed slight rust infection and no noticeable injury. Hope, H-44, and varieties of Hope or H-44 parentage are practically rust-free.

The wheat loss caused by rust on farms in this locality appears devastating. Wheat first estimated at 30 bushels per acre is yielding 3 bushels.

Early flax varieties are ripening and probably will be ready to harvest in about a week. Pustules of flax rust were first noted July 19.

Official visitors included J. Allen Clark, S. C. Salmon, K. S. Quisenberry, C. E. Leighty, A. C. Dillman, Wallace Butler, and H. H. Flor.

The maximum temperature was 97° and the minimum 52°. The precipitation was 0.57 inch.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(July 31)

Hot, dry weather has prevailed during the last half of July with only 0.21 inch of rain. Although moisture conditions were excellent during the first half of the month, the soil is now very dry.

Although cereal crops were considerably later than usual in heading, they are ripening rapidly at about the usual harvest time. Early varieties of wheat, oats, and barley at the Substation have been harvested and nearly all varieties will be ripe and harvested by the end of this week.

Stem rust is more abundant on wheat at the Substation than in any year since 1916, although not so plentiful as in some other parts of the State. Late-sown wheat in this vicinity will be injured considerably by the rust. There is some rust on barley varieties and a slight amount on oats. Corn is in good condition but needs rain.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(Aug. 2)

Hot, dry weather in July has hastened maturity and, in combination with the severe stem rust infection, has shriveled the grain. The oat nursery was harvested on July 31 and the common wheat harvest started on August 1. Operations were temporarily halted last night by a shower. The durum wheat nursery will be ready for harvest in two or three days. Wheat straw is heavy enough for a 40 to 50 bushel yield, but only the more rust resistant varieties will produce more than 25 bushels per acre. Rust on Mindum check rows in the yield nursery runs about 60 percent and about 25 to 35 percent on Kubanka 1440 checks. Marquis and Ceres checks were entirely killed before Thatcher, which is normally earlier, was ripe.

Artificially inoculated bunt experiments carry about 30 to 40 percent infection on Mindum check rows.

The probabilities are that stem rust will do severe damage even in the durum wheat section around Langdon. The nursery there carries the heaviest infection yet obtained and nice differential reactions are apparent.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Aug. 1)

The wheat harvest in this vicinity will be nearly finished within a week. Many farmers report yields of more than 40 bushels an acre. Some plots of spring-sown Federation on the Station produced more than 50 bushels an acre. Nursery threshing is finished and the plots that are to be "combined" are nearly all harvested. Varieties in the yield experiments will be threshed next week.

Temperatures of 90° or higher prevailed from July 11 to 23, providing excellent harvesting weather. A maximum of 110° was reached on July 14. There have been only traces of precipitation.

The Western Branch of the American Society of Agronomy met in Pendleton on June 18 to 20. Papers were presented by those connected with the Coordinated Wheat Improvement Project. Sixty-two men, representing 7 States and the United States Department of Agriculture, attended the meetings. B. B. Bayles, F. A. Coffman, C. C. Fifield, H. A. Rodenbiser, and S. C. Salmon were members of the Washington group that inspected the Pendleton Field Station and the nearby soil erosion project.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27.

August 25, 1935

No. 13

Personnel (Aug. 11 - Aug. 25) and Field Station (Aug. 1 - 15)

PERSONNEL ITEMS

Dr. M. T. Jenkins left Washington on August 22 for points in Tennessee, Georgia, and Florida to confer with personnel of the Division and officials of agricultural experiment stations regarding the cooperative corn improvement program.

Mr. J. W. Jones left Washington on August 11 for points in Missouri, Arkansas, Louisiana, Texas, and California where he will study cooperative experiments with rice. He will make crosses and selections in the cooperative rice nurseries and assist in harvesting the plots.

Dr. J. H. Martin left Washington on August 11 for a trip of two months in the sorghum producing area. His itinerary will include stops in Missouri, Arkansas, Texas, Oklahoma, Kansas, Nebraska, Colorado, New Mexico, Arizona, California, Oregon, Utah, and Illinois, where he will conduct cooperative experiments in sorghum breeding and physiology and consult with officials of agricultural experiment stations on future cooperative investigations.

Dr. V. F. Tapke returned to Washington on August 12 after 5 weeks in Ithaca, N. Y. He reports that the cooperative experiments on loose and covered smuts of barley produced very satisfactory results. Considerable difficulty was encountered in obtaining data owing to unusually wet weather. A rainfall of 12.5 inches occurred in Ithaca in the month of July.

RECENT PUBLICATIONS

Classification of Wheat Varieties Grown in the United States. J. Allen Clark and B. B. Bayles. U. S. Dept. Agr. Tech. Bull. 459, 164 pp., 46 pls., 78 figs. April 1935.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (Aug. 17)

A maximum temperature of 103° was recorded for August 10. This was the second time in 26 years that so high a temperature has been reached and the thirteenth time in the same period that 100° or more has been registered. The precipitation for the first 16 days of August was 3.17 inches, of which 1.45 fell on the 15th, supplying all the water the levees would hold.

The March 18 seeding of Fortuna and the April 6 and 15 seedlings of Early Prolific were harvested August 14. Rexoro seeded on March 14 is heading about a week later than Blue Rose seeded on the same date and at the same time as April sown Blue Rose.

The early varieties in the field plots are ripening rapidly. Most of the 39 selections in the two early groups in the nursery will be harvested within a week. Most of the commercial Early Prolific has been harvested.

Note taking in the nursery and hybridization work has occupied the writer's attention for the first part of the month.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Aug. 15)

Weather conditions during the first half of August were about seasonal. The maximum temperature of 105° on August 10 is the highest so far this summer. The minimum temperature was 66°. Only 0.03 inch was recorded on the 13th.

Hot, dry weather has been favorable for cotton and has retarded insects on cotton, which were becoming destructive. Some poisoning for leaf worm and boll worm has been done in the county, but natural control has been effective during the past 2 weeks. Feed crops are all in good condition in spite of the dry weather, as subsoil moisture is still available.

The preparation of lists and seed for fall seeding was started this week. Yields for the 1935 season have all been calculated and reported.

Mr. J. C. Ware, senior agronomist, Division of Cotton and Other Fiber Crops, was a visitor August 7.

KANSAS

FORT HAYS TRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Aug. 15)

Droughty conditions have prevailed in this region for more than 30 days. Since July 1 the rainfall has amounted to 0.19 inch. Temperatures above 100° have frequently prevailed.

All hopes for a corn crop other than a limited quantity of fodder have long been abandoned, and the prospects for obtaining any grain from the sorghums are meager. The sorghums will make a fair quantity of feed, however, and with immediate rains the tonnage per acre could be quite satisfactory.

The prospects so far for starting the new wheat crop are none too good except where the land was well tilled early in the spring to hold the heavy May and June rainfall which totaled approximately 11.5 inches. Previous to May 13 there was no subsoil moisture in this territory and whatever growth row crops and native grasses have made this season has been due to the early summer rains. Oats and barley were a total failure in this region and wheat

Stem rust was the final detrimental factor which adversely influenced the yields where the wheat crop survived drought, wind erosion, and low temperatures earlier in the season.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Aug. 17)

The weather during the first half of July was generally hot and dry. Flax has ripened rapidly and most of it has been harvested.

Threshing of the wheat nursery is nearly completed but yields have not yet been tabulated. Yields of Marquis are running about 10 bushels per acre with a test weight of about 42 pounds. Yields of Ceres are running about 15 bushels per acre with a test weight of about 48 pounds. Yields of some practically rust-free varieties average a little over 30 bushels with a test weight of 60 pounds. Threshing of the varietal plots has been delayed by wet weather.

The community was saddened by the untimely death on August 3 of Mrs. J. M. Stephens, wife of Superintendent Stephens.

Mr. V. C. Hubbard visited in Mandan and at the experiment station August 7 to 14 and was married on August 14 to Miss Dora Borden, daughter of Mr. and Mrs. Wm. P. Borden, of Mandan.

Many people from elsewhere attended the meeting of the North Dakota State Horticultural Society at Mandan August 15 and 16 and visited the experiment station.

Other station visitors included M. A. McCall, A. C. Dillman, and J. Allen Clark.

The maximum temperature was 104° and the minimum 53° . The precipitation was 0.97 inch.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(Aug. 16)

The hot, dry weather that prevailed during the latter half of July has continued up to the middle of August. A shower of 0.54 inch of rain occurred early this month. Cooler weather and light drizzling showers last night and today indicate a temporary break at least in the summer's heat and drought.

The threshing of the spring wheat nursery was completed yesterday. Yields ranged from about 10 to 24 bushels per acre. The weight per bushel varies with earliness and rust resistance. Much wheat in this district was sown considerably later than at the Substation and shriveled wheat is reported as very common.

The yields obtained in the uniform regional nursery are reported in the accompanying table.

Dr. C. E. Leighty, principal agronomist in charge of the Division of Dry Land Agriculture, visited the Substation recently.

Acre yield of varieties in the uniform regional spring wheat
nursery at Dickinson Substation, 1935

Variety	C. I. no.	Nursery no.	Av. yield (Bu. per acre)
Ceres x Hope-Florence	11640	2553	21.1
Hope x Ceres	11728	1093	20.7
Ceres x Hope-Florence	11712	2592	20.7
Reliance x Hope	11624	1121-2	20.2
H-44	8177	--	19.9
H-44 x Marquis	11643	II-26-C	19.9
Ceres x Hope	11683	1226	19.6
Marquis x Keta	11463	1656-106	19.4
Hope x Turkey-Florence	11711	1300	19.3
Pentad x Marquis	11475	R. L. 729	18.9
Ceres x Hope-Florence	11703	2534	18.8
H-44 x Marquis	11631	R. L. 704	18.5
Hope x Reward	11646	C26-59-2	18.1
Ceres x Hope-Florence	11714	2601	18.1
H-44 x Marquis	11551	1552	18.1
Ceres x Hope-Florence	11713	2594	17.8
H-44 x Marquis	11641	II-26-D	17.4
Double Cross	10020	II-21-18	17.0
H-44 x Reward	11709	R. L. 716-A	16.7
Ceres	6900	1658	16.7
Marquis	3641	--	15.0
Kemar x Russar	11685	1265	14.7
Hope x Marquis	11710	1189	13.2
Comet	11465	649	11.9
Canus	11637	I-28-114	11.0

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Aug. 15)

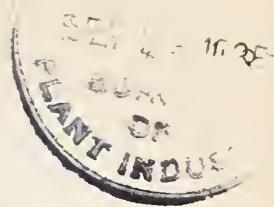
The nursery harvest at Fargo is practically completed and at Langdon is well under way. Hot, dry weather the latter part of the season will cause even rust resistant varieties to be shriveled at both stations. At Fargo, disease damage from black chaff, root rot, Holminthosporium, and especially rust will prevent many of the durums from showing a clear translucent color. The same diseases also caused damage at Langdon to a lesser extent. At both stations, the most susceptible varieties of common and durum wheats crinkled from stem rust and died a week or more before the resistant varieties matured. In general, stem rust was heavier at Langdon than at Fargo, but on the whole, both durum and common wheats in the nursery will produce much nicer wheat at Langdon because of the better moisture conditions.

Rust notes taken this year will be very useful in discarding material in the breeding program. Infection ranged from zero to 100 percent, all intermediate degrees being abundantly represented in hybrid material. Rust notes taken in former years at Langdon under conditions of lighter infection were found to compare satisfactorily with notes taken this year.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27

September 10, 1935

No. 14

Personnel (Aug. 26 - Sept. 10) and Field Station (Aug. 16 - 31)

PERSONNEL ITEMS

Dr. M. F. Jenkins left Washington on August 25 on an official trip in West Virginia, Ohio, Indiana, Illinois, Missouri, Kansas, Nebraska, Iowa, and Wisconsin to look over cooperative corn experiments and confer with Division field employees and officials of the State agricultural experiment stations on the cooperative corn improvement program.

Dr. M. A. McCall returned to Washington, D. C., on August 30 after inspecting cooperative cereal work in Wisconsin, Minnesota, North Dakota, Montana, Wyoming, and Nebraska. Some time was spent in looking into the possible adequacy of seed stocks for 1936 in the hard red spring wheat region. In many localities, in the Dakotas in particular, wheat is of very low test weight, averaging from 40 to 45 pounds per bushel. In general there seem to be adequate supplies of grain suitable for seed, although it is still somewhat early to tell definitely whether these will be available in all cases to farmers.

Some time was also spent in the interests of the weed program in Montana and Wyoming. A stop was made at Powell, Wyo., and a day spent with Mr. C. L. Corkins, State Entomologist of Wyoming, and the District Weed Control Board of Park County in inspecting the weed control program being carried on in that area. The problem is a most serious one and in spite of the intelligent and constructive program that is being energetically pushed by the weed board it is very evident that final success cannot be attained until additional information is obtained through research. Perennial weeds such as Russian knapweed, white top or hoary peppergrass, bindweed, and Canada thistle are prevalent in the area. While water is available for irrigation, the prevailing arid climate, soil alkalinity, and high salt content are apparently responsible for so modifying conditions that herbicidal control measures used elsewhere are not effective. It is becoming increasingly evident that intensive research on the physiology and soil relationships of various perennial noxious weeds is the only basis for developing control measures.

A stop was also made at the Central Great Plains Field Station of the Division of Fruit and Vegetable Diseases at Cheyenne, Wyo. It is suggested that members of the Cereal Division will find it to their advantage to visit this station when convenient.

Dr. M. A. McCall left on September 9 to visit cooperating experiment stations in Kansas, Oklahoma, Texas, and Arkansas and consult with Division and State station personnel regarding plans for future work.

NOTICES

The 74th Congress appropriated \$60,000 for investigations relating to weed control by the United States Department of Agriculture, of which \$20,000 is to be used by the Bureau of Chemistry and Soils for the investigation of cheaper means of producing chemicals to combat noxious weeds and \$40,000 by the Bureau of Plant Industry to investigate methods of control or eradication of bindweed and other noxious weeds.

The Division of Cereal Crops and Diseases expects to conduct field experiments at four or five strategic points both with chemicals and with cultural and cropping methods to determine the best way of controlling or eradicating bindweed. It is also expected that certain chemical and physiological studies will be undertaken to determine why it is that eradication or control methods give quite different results in different areas. Temporary programs were gotten under way at Hays, Kans., Lincoln, Nebr., and Ames, Iowa, during the past summer. It is expected that a permanent program will be initiated in the near future.

Mr. L. W. Kephart has been transferred from the Division of Forage Crops and Diseases to the Division of Cereal Crops and Diseases to handle the weed program under the immediate supervision of Dr. S. C. Salmon.

By direction of Mr. F. D. Richoy, Chief of the Bureau of Plant Industry, all of the work with grain and forage sorghums has been combined in one project in the Division of Cereal Crops and Diseases. This entails work at Ft. Hays Branch Station, Hays, Kans., and Substation No. 12, State Agricultural Experiment Station, Chillicothe, Texas. The only personnel involved in the transfer is Mr. Joseph C. Stephens, in charge of cooperative sorghum breeding and genetics at Chillicothe.

RECENT PUBLICATIONS

Effect of Soil Temperature and Depth of Planting on the Emergence and Development of Sorghum Seedlings in the Greenhouse. J. H. Martin, J. V. Taylor, and R. W. Leukel. Jour. Amer. Soc. Agron. 27(8): 660-665, fig. 1. August 1935.

Incidence of Bacterial Wilt in Experimental Plantings of Sweet Corn at LaFayette, Indiana, in 1934. U. S. Dept. Agr., Bur. Plant Indus. Plant Disease Rept. 19(12): 204-209. Aug. 1, 1935. (G. M. Smith)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Sept. 9)

The weather conditions in August were favorable for growing rice but not for the harvest of early maturing varieties.

The maximum temperature was 103°. This is the highest ever recorded at the Station and has been equalled only once before - in June 1930. The minimum temperature was 67°. The highest minimum was 80°, which is very unusual.

The total precipitation for August was 7.16 inches, 2.19 inches more than in August last year and 1.79 inches more than the 25-year average for the month. The rains were well distributed and of sufficient daily fall to be of great value in the irrigation of rice.

Where the weather permitted, much early rice was harvested and threshed in August. Good yields are reported. The indications are that the late-maturing fields, as a whole, will produce good crops.

Attack by a certain leaf spot disease has been less this season than in any other season for 5 or 6 years. Other diseases are prevalent, however, and the indications are that Blue Rose rice will be damaged at time of maturity, as it has been for several years.

Work on the Station progressed nicely. Plots in the rice date-of-seeding experiment were harvested. Rices in the varietal experiment are maturing.

Cotton picking was begun the latter part of the month. Yields are exceptionally good. There was very little "cassing" of fruit in July and only a small amount of "boll rot" in August. The effects of the various fertilizer treatments are very apparent.

Mr. Jenkin W. Jones spent the latter half of the month on the Station plots.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausmann) (Sept. 4)

Threshing of the winter wheat nursery and field plots has been completed. This work was delayed because of wet weather during the first half of the month. The quality of the winter wheats in general is good. Winter wheat is now being sown in Minnesota.

The spring cereals are being threshed. The yield and quality of the Marquis and Ceres and other rust susceptible varieties are very poor.

The weather for the first half of August was very warm and the latter part of the month it was cool. The maximum temperature for the month was 95° on August 11 and the minimum 45° on August 28. The precipitation for the month was 3.02 inches, as compared with a normal of 3.12 inches.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Sept. 1)

Some seed beds for fall grain were prepared in August. Considerable time was spent in packing all experimental grain for the Denton and Amarillo seedings and preparing seeding plans. Mr. P. B. Dunkle, of the Texas Agricultural Experiment Station, will supervise the experimental seedings during the absence of the writer for the fall semester at Manhattan, Kans.

Meteorological data recorded for August were as follows: Maximum temperature 105°, minimum temperature 58°, and mean temperature 84.4°. The precipitation was 0.21 inch. The weather was dry and hot, although only one week of the month was oppressive. A norther with a minimum of 58° near the close of the month was unusual.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinshad, Jr.) (Sept. 3)

The weather in the last half of August was generally hot and dry except for several cold nights towards the end of the period. A light frost on the night of August 27 damaged corn and other tender plants.

The flax varietal and increase plots and nearly all of the flax nursery have been harvested. The plots have been threshed. Threshing of the flax nursery will be done this week.

Station visitors included Messrs. F. A. Coffman and J. A. Clark.

The maximum temperature was 98° and the minimum 32°. The precipitation was 0.37 inch.

Data on yield and stem rust of the varietal plots of wheat, oats, and barley are shown in the following tables.

Yield, test weight, and percentage of stem rust infection of 20 varieties of spring wheat grown in triplicate 50th-acre plots at Mandan, N. Dak., 1935

Variety	C.I.no.	Stem rust (Percent)	Yield (Bu.per acre)	Test weight (Lbs.)
<u>Hard Red Spring</u>				
Hope x Ceres (N.No.1127)	11432	2	29.6	56
Thatcher	10003	8	27.6	54
Hope x Ceres (N.No.1098)	11428	10	27.2	54
Reliance x Hope (N.No.1110)	11433	1	25.4	56
Hope x 1656.97	11471	3	24.2	54
Kota x Marquis {1656.85}	8385	53	23.7	51
Kota x Marquis {1656.48}	10014	53	23.1	50
Reliance x Hope (N.No.1131)	11435	4	22.1	55
Hope	8178	T	22.0	52
H-44	8177	T	21.9	52
Reward	8182	77	20.3	55
Kcmar	8004	53	19.3	48
Ceres	6900	67	18.6	48
Marquis	3641	77	11.1	43
Comot	11464	90	11.0	40
Reliance	7370	90	8.7	43
Supreme	8026	97	5.7	33
<u>Durum</u>				
Kubanka	1440	30	25.5	56
Mindun	5296	40	23.0	57
Kubanka scl. 132	8383	45	17.2	53

Yield, test weight, and percentage of stem rust infection of 12 varieties of oats grown in triplicate 50th-acre plots at Mandan, N. Dak., 1935

Variety	C.I.no.	Stem rust (Percent)	Yield (Bu.per acre)	Test weight (Lbs.)
Rainbow	2345	T	57.6	30
Green Russian scl.	2344	T	55.3	32
Logold	2329	T	55.1	31
Minrus	2144	T	55.1	31
Rusota	2343	T	55.1	31
Anthony	2143	2	54.7	31
Carleton	2370	55	53.7	33
Sixty-Day	165	12	52.5	32
Markton	2053	43	50.8	31
Gopher	2024	35	49.9	32
Victory	560	23	49.5	31
Wayne	2567	25	45.7	31

Yield, test weight, and percentage of stem rust infection of 8 varieties of barley grown in triplicate 50th-acre plots at Mandan, N. Dak., 1935

Variety	C.I.no.	Stem rust (Percent)	Yield (Bu.per acre)	Test weight (Lbs.)
Trbri	936	33	33.9	37
Odessa	182	28	32.3	40
Horn	926	55	29.5	43
Glabron	4577	45	28.5	37
Hannchen	531	40	26.2	42
Vaughn	1367	28	24.8	38
Fcatherston	1120	35	24.1	41
Alpha	959	60	24.1	40

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Sept. 3)

Yield data and other information on winter wheat, spring wheat, and spring barley varieties grown in replicated field plots in 1935 are presented in the following tables.

Yields were only fair this year but are representative of the area. Some farm fields produced about 50 bushels an acre but these were mostly in a section of higher rainfall.

There were only traces of precipitation during the month of August. The maximum temperature was 96°. The nights were generally cool, the minimum temperature being 34°.

Yield and test weight for 16 winter wheat varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1935

Variety	C.I.no.	Yield (Bu. per acre)	Weight per bushel (Lbs.)
Rey	10065	40.5	62.0
Fortyfold sel. 29	10062	40.5	60.0
Fortyfold x Hybrid 128	11700	39.4	60.0
Golden	10063	39.1	60.0
Hybrid 128 x Martin	11606	38.9	60.1
Hybrid 128 x White Odessa	11607	37.8	62.8
Federation	4734	37.5	60.8
Kharkof	1442	37.1	62.5
Triplet	5408	36.3	62.7
Albit	8275	36.3	60.2
Hybrid 128	4512	36.0	61.8
Jenkin	5177	35.7	60.8
Oro	8220	35.3	63.8
Turkey sel.	11424	35.2	63.0
Fortyfold	4156	35.2	60.0
Ridit	5703	32.9	63.0

Yield and test weight of 9 spring wheat varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1935

Variety	C.I.no.	Yield (Bu. per acre)	Weight per bushel (Lbs.)
Daart x Federation	8254	34.9	60.2
White Federation	4931	34.5	61.0
Onas	6221	34.1	58.3
Federation x Bunyip sel. 49	--	33.4	59.3
Federation	4734	33.2	58.7
Hard Federation 31	8255	32.7	62.5
Sunset x Boadicea	11706	32.6	59.7
Daart	1697	31.4	61.3
Marquis	4158	29.9	59.7

Yield of 7 spring barley varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1935

Variety	C.I.no.	Yield (Bu. per acre)
Flynn sel. 1	5911	49.2
Flynn sel. 37	5918	48.6
Peruvian sel. 1	5912	47.5
Trebi	936	44.3
Club Maricout	261	43.6
Arequipa	1256	43.1
Meloy sel. 3	4656	39.6

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward)
(Aug. 31)

In July and August there was practically no precipitation in Cache Valley. The mean temperature was around the normal and no very hot or cool periods. Crops in general were satisfactory both on the dry farms and the irrigated sections. Winter wheat did much better than in the two previous years, as the winter and spring moisture was fair.

A severe smut epidemic appeared in the Cache and Boxelder winter wheat areas as well as in southern Idaho. The "short" smut (*Tilletia tritici*) was the predominate type, causing a loss of from a small percentage to over half of the crop in a number of fields. Some parts of a field have been found containing from 90 to 95 percent of this smut. In the past, the damage from smut has not been so universal as this year. Only slight amounts of the "tall" smut was found in southern parts of Utah, whereas the dry-farming area of Juab County showed only a trace of smut in some fields and many fields were almost entirely smut-free.

Messrs. D. B. Bayles, C. H. Holton, R. J. Evans, D. C. Tingey, J. C. Hogenson, and the writer made a rather complete survey of the smut conditions in northern Utah. Relief wheat produced at this Station appeared to be highly resistant to the short smut and to be well adapted to the dry-farm conditions of this region. Several hundred acres were grown this year with only a trace of smut. All harvesting and threshing of the small grains have been completed except for some of the uniform county nurseries which have not yet arrived at Logan. Yields were favorable for all the crops so far harvested. Winter wheat varieties yielded in excess of 50 bushels an acre; winter wheat varieties grown under irrigation yielded over 90 bushels, as compared to 72 to 75 for Federation and Dicklow seeded early this spring within the same test; the regular spring wheat nursery contained varieties that yielded over 80 bushels, while the better barley varieties yielded over 120 bushels and the better oats varieties more than 150 bushels. This season was considered favorable, especially for winter wheat.

A strain of Hard Federation and Dicklow (C. I. 11544) was multiplied and is to be named and certified for distribution as an improved variety to replace Federation and Dicklow on the irrigated lands. A smooth-awned barley strain from a cross of Trebi x Colorado sel. 3063 (Coast x Lion) has shown excellent yields as well as stiff straw and a white plump kernel. The awns have continued to breed true for the smooth character for 5 years and for erect heads and stiff straw. This strain will be grown on commercial fields for further trial as a possible variety to replace Trebi.

The soil is now very dry and will require considerable moisture before germination can take place.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartol)
(Sept. 4)

August was an extremely wet month. A trace or more of precipitation was recorded for 23 days in the month. The total precipitation was 5.61 inches, which was more than twice as high as the normal of 2.23 inches. The highest daily rainfall was on August 1, when 2.88 inches fell. The maximum temperature was 103°, the minimum 64° and the mean 82.4°.

The sorghum varieties at Tucson are making very rapid growth at this time. Some of them headed 10 days ago. Approximately 75 varieties were planted here this summer.

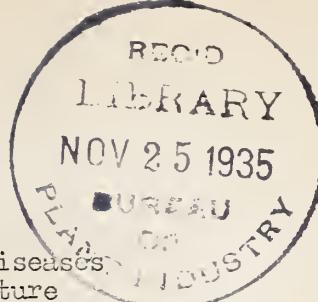
The yields of wheat varieties grown in three 1/40th-acre plots at the Salt River Experiment Station, Mesa, are as follows:

Variety	C. I. no.	Yield (Bu. per acre)
White Federation	4981	56.9
Saart	1697	57.5
Marquis	4158	63.1
South African	--	65.5
Pacific Bluestem	4067	66.0
Jenkin	5177	68.5
Federation	4734	73.1
Onas	6221	74.8
Irwin Dicklow	8855	78.5
Bobin	11194	78.7

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27

September 25, 1935

No. 15

Personnel (Sept. 11 - 25) and Field Station (Sept. 1 - 15)

PERSONNEL ITEMS

Mr. C. E. Chambliss left Washington on September 25 for points in South Carolina, Georgia, Florida, Louisiana, and Texas to collect samples of milled rice for technological studies, to inspect Patna rice selections, and to confer with experiment station workers, seedsmen, and mills regarding the utilization of rice, including Zizania. Mr. Chambliss will be away about three weeks.

Dr. M. T. Jenkins has called a meeting of workers in the Corn-Belt cooperative corn program to meet at La Fayette, Ind., October 1 and 2. Mr. F. D. Richoy, Chief of the Bureau, and Dr. E. C. Auchter, Assistant Chief of the Bureau, also expect to be present. Problems concerned with the breeding of disease resistant corn are to receive special attention.

Dr. M. H. Levine sailed on July 9 from New York for Naples on the Italian liner "Rex." He was en route to Palestine to visit relatives. He spent several days in unofficial visits at the Central Agricultural Experiment Station at Rehoboth and at the Hebrew University in Jerusalem. The experiment station (formerly located at Tel-Aviv) has a site of 300 acres as well as some other large tracts of land in various parts of the country. Dr. Levine in his talks with officials of the Government department of agriculture in Palestine found that they are much interested in agricultural work that is being done in the United States. They say that they learn more from the practice of agriculture and the scientific investigations in agriculture in the United States than from any other source. They also like to receive the helpful advice from people in this country. Recently they had had a visit from Dr. H. S. Fawsett, citrus specialist from California. Mr. Knowles A. Ryerson, formerly Chief of the Bureau of Plant Industry, was a visitor some years ago. The help of other experts from the United States and European countries has been much appreciated.

Agriculture in Palestine is given great consideration. While the people believe that Palestine may have a future of some industrial importance, they feel that with out a sound agriculture the country cannot hope for any real progress. The striking thing in Palestine as well as in some of the other Mediterranean countries is the practice of intensive agriculture. The people of those countries feel that they must utilize every available square foot of ground. Apparently they seem to know just how to do it.

Dr. Levine was in Switzerland for a short time. There, too, intensive agriculture of necessity is very wide-spread. Not only do the people of Switzerland and of the Mediterranean countries get everything out of the land that they possibly can but they succeed in making the countryside very beautiful. The blending of human effort and Nature's gifts is marvelous.

Dr. Levine returned to his official duties on September 16, reporting to the Division in Washington. He spent several days in consulting Department officials on future cooperative investigations at University Farm, St. Paul, and in the preparation of a manuscript. He left for St. Paul on September 21.

Dr. M. A. McCall returned on September 20 from a trip in Kansas, Oklahoma, and Mississippi. Stops were made at Manhattan and Hays, Woodward and Stillwater, and Stoneville.

The severe drought and heat that prevailed in the central Great Plains area during the past season have proved a severe handicap in the corn and sorghum breeding programs. Rains came too late in Kansas to benefit either crop, and seed yields will be negligible. There will be a serious seed shortage of adapted home-grown varieties of both corn and sorghum in Kansas next season. Conditions are progressively better toward the south and there will be available seed supplies both in Oklahoma and Texas.

While not up to normal expectation, results in the sorghum program at Woodward, Okla., are much better than elsewhere and are yielding worthwhile data and materials. At Stillwater, tentative arrangements were made looking toward cooperation with the Oklahoma station in the chinch bug resistance studies being carried at Lawton. Mr. R. O. Snelling, a graduate of the Kansas State College, who has been engaged in this work for a number of years at Lawton, has been placed in charge of the project in the sorghum program of the Division.

The stop at Stoneville, Miss., was primarily for the purpose of observing the progress of the cooperative cotton program of the Bureau and the Mississippi station at that point. A very satisfactory set-up has been effected and is promising interesting results.

Mr. E. S. McFadden is being transferred to the Texas Agricultural Experiment Station, College Station, Texas. There he will work in cooperation with the agronomy and genetics department in the breeding of stem-rust resistant winter wheats that will be not only suitable for Texas but that will, it is hoped, ultimately prevent the abundant development of the inoculum that serves as a source of infection of wheats in the central winter wheat and northern spring wheat areas of the United States. Mr. McFadden will work in close cooperation with Dr. P. C. Mangelsdorf and others of the Texas station.

Dr. K. S. Quisenberry and Mr. J. W. Taylor left Washington on September 17 to observe the condition of the buckwheat crop in West Virginia, western Maryland, Pennsylvania, and New York. In the southern and western parts of Pennsylvania the crop is very good. In New York, however, it was badly injured by the wet weather and floods that occurred in July. In certain sections of New York State only a part of the crop was seeded because of heavy rains and these fields were damaged by the floods. In some places the seed set was very poor due to unfavorable weather conditions, and the crop is late. At the time of the visit about half of the crop was cut and in no case were there signs of threshing.

Dr. L. F. Randolph recently spent several days in Washington in preparing illustrative material in the Illustrations Section for his manuscript on the morphology and development of the corn kernel.

Drs. J. D. Sayre and V. H. Morris were in Washington from Sept. 17 to 23 for the purpose of collecting corn material at the Arlington Experiment Farm for use in their studies on the physiology of the corn plant. This material is to be analyzed in the laboratories at Wooster, Ohio, as a part of the general cooperative corn program of the Division.

RECENT PUBLICATIONS

Solubility of Potassium in Corn Tissues. V. H. Morris and J. D. Sayre. *Plant Physiol.* 10(3): 565-568. July 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Agronomy Department of the Ohio Agricultural Experiment Station.)

A New Fixing Fluid and a Revised Schedule for the Paraffin Method in Plant Cytology. L. F. Randolph. *Stain Tech.* 10: 95-96. July 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Department of Botany of the New York State College of Agriculture, Ithaca, N. Y.)

Studies on the Variability of Pathogenicity and Cultural Characters of Gibberella saubinetii. Arnold J. Ullstrup. *Jour. Agr. Research* 51(2): 145-162, figs. 1-8. July 15, 1935. (Cooperative investigations by the Wisconsin Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Relation of Variety Testing and Plant Breeding to Quality of Kansas Wheat. John H. Parker. *Northwest Miller* 183(6): 532-533. Aug. 21, 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Effect of Tillers on the Development of Grain Sorghums. A. T. Bartel, J. H. Martin, and R. S. Hawkins. *Jour. Amer. Soc. Agron.* 27(9): 707-714, figs. 1-4. September 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

A New Leaf Spot of Oats. Roderick Sprague. *Northwest Science* 9(3): 15. September 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Insect Resistance in Crop Plants. John H. Parker. *Northwestern Miller* 183 (9): 805-806, illus. Sept. 18, 1935.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausenau) (Sept 16)

Warm, dry weather has prevailed during the first half of September, which has allowed corn to mature normally. The indications are that there will be a good crop in most sections of the State.

Threshing of the spring wheat nursery and field plots has been completed. Seeding of the winter wheat nursery and field plots at University Farm and the Southeast Experiment Station at Waseca were completed on September 14. The ground was dry and moisture will be needed before uniform germination of the seed can be obtained.

Dr. H. V. Harlan was a recent visitor at the Station.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger)(Sept. 16)

A precipitation of 1.78 inches from five showers since the 25th of August has caused cooler temperatures and fair growing conditions for the later and undeveloped sorghums.

Several of the earlier maturing sorghums in the date-varietal experiments were headed (harvested) the 10th. Also, about one-third of the broomcorn nursery varieties were harvested on the 9th. Should frost hold off until the last of October (which is its average date) the sorghum and broomcorn plots will outyield those of 1934.

Visitors interested in the sorghum and broomcorn project included Doctors M. A. McCall and J. H. Martin, and Mr. A. F. Swanson.

The maximum temperature for the first half of September was 95° on the 14th and the minimum, 47° on the 10th. The precipitation so far in September was 1.20 inches on three days.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(Sept. 17)

Recent rains have left the Station plots with plenty of moisture to give winter wheat a good start. Many farmers in this area have already sown their winter wheat and good stands have emerged, possibly with a view to using it for fall pasture. The Station does not recommend seeding winter wheat prior to October 1.

Four plots of a rate-and-date-of-seeding experiment were sown on September 16.

KANSAS

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson)(Sept. 16)

Rain has fallen in many parts of Kansas during the last 15 days, the record for Hays being 1.08 inches. Conditions for seeding wheat over the western half of the State are not very satisfactory. The amount of sub-soil moisture is low in most fields and only fairly satisfactory in fields that have been well fallowed.

There will be a shortage of sorghum seed in Kansas of all varieties. Seed is generally found only on fields located on low land which were subjected to flood water in May and June. There will be a greater abundance of feed this year than last year. Native grasses revived well where not subject to overgrazing.

Seeding of winter wheat has begun in the western half of the State. In some parts of the State the seeding is really too early for the best yields on account of the low reserve of stored moisture.

Messrs. M. A. McCall and L. W. Kophart were visitors on September 11 and 12.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Sept. 17)

The weather of the first half of September was generally dry, with moderate day temperatures and cool nights.

Threshing of the flax nursery was completed on September 13 except for selections, inheritance material, etc., that require detailed study.

The winter hardiness wheat nursery was sown September 4 and part of it has emerged in patches.

Mr. Frank Rabak visited the Station on September 9 to inspect the safflower and hempseed.

Acre yield, percentage of rust infection, and test weight of wheat varieties grown in the regional nursery, and acre yields from the flax varietal plots are given in the following tables.

The maximum temperature for the first half of September was 98° on the 15th and the minimum 36° on the 4th. The precipitation was 0.09 inch.

Yield and test weight of flax varieties grown in triplicate 50th-acre plots, Mandan, N. Dak., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Test weight (Lbs.per bu.)
Sib 206	473	11.6	54
Linota	244	11.4	54
Buda Selection	737	10.8	55
Bison	389	10.6	54
Bison ^{1/}	389	9.7	54
Buda	326	10.5	55
Sel. 161 (Nat. Hyb.)	744	10.0	55
Buda x (19 x 112)	742	9.9	55
Redwing	499	9.6	55
Hyb. 160 x 179	496	9.1	55
Arg. 1-25-70	764	8.7	55
B. Golden	644	8.7	54
H-10-2-59-3	739	8.6	55
Rio	280	8.6	54
Sel. 167-254	475	8.6	55
Hyb. 160 x 179	745	8.6	55
Hyb. 19 x 112	478	7.6	56
Walsh	645	7.5	54
New Golden	735	7.3	52

The yield of safflower was 21.2 bushels per acre with a test weight of 36 pounds.

^{1/} All varieties sown with press wheel attachment on drill except this set of Bison plots sown with chains behind drill.

Yield, test weight, and percentage of stem rust infection of 25 spring wheat varieties grown in triplicate plots in the regional nursery at Mandan, N. Dak., 1935

Variety	C.I.no.	Stem rust (Percent)	Yield (Bu.per acre)	Test weight (Lbs. per bu.)
Ceres x Hope-Florence	11640	2	30.3	59
Hope x Ceres	11428	4	28.8	59
Ceres x Hope-Florence	11708	3	28.1	59
Do.	11712	1	27.7	59
H-44	8177	1	26.6	57
H-44 x Marquis	11644	1	26.3	57
Do.	11643	1	25.6	55
Do.	11634	2	24.9	57
Ceres x Hope-Florence	11713	4	24.6	60
Do.	11714	12	24.2	59
Hope x Turk-Florence	11711	2	23.6	54
H-44 x Marquis	11551	11	23.0	56
Ceres x Hope	11683	18	22.1	55
Double Cross	10020	30	21.2	58
Pentad x Marquis	11475	1	21.0	55
H-44 x Reward	11709	3	19.7	60
Hope x Reward	11646	5	19.0	59
Marquis x Kota	11688	12	18.7	54
Hope x Marquis	11710	37	18.4	59
Reliance x Hope	11684	2	17.4	56
Ceres	6900	45	16.9	53
Marquis	3641	67	12.6	48
Komar x Hussar	11685	60	10.0	44
Canus	11637	80	9.0	40
Cemet	11465	92	8.3	31

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(Sept. 16)
 Threshing of cereal experiments is completed except for a few plant rows. Threshing in the vicinity is still in progress. Yields and test weights vary considerably. There is much light weight wheat, especially on late sown fields.

The seeding of winter grain at the Substation is in progress. There has been practically no rain for the past 4 weeks, and the time of emergence will depend on subsequent rainfall.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith)(Sept. 17)

All regular threshing for the cereal project has been completed both at Langdon and Fargo. Contrary to expectation, the seed produced in the nursery at Langdon was much inferior to that grown at Fargo. Evidently, the very rank growth early in the summer at Langdon caused the grain to be unusually susceptible to the heat of late July. Another possibility is that such diseases as root rots played a more important role at Langdon. Rust infection was generally a little heavier at Langdon, but not even the rust resistant strains gave high test weights per bushel. Yields in the nursery ranged up to 22 bushels per acre at Langdon and 30 bushels at Fargo. Despite important differences in the limiting factors at the two stations, several of the better hybrid strains of durum wheat were promising at both places. At Langdon, the season was so severe from the standpoint of rust, heat, and disease damage that Marquis and Ceres common wheat in the nursery were entirely killed and Mindum and Kubanka durum yielded less than half as much as the improved hybrid strains.

Average yield of 21 spring wheat varieties grown in triplicated 1/60th-acre plots

Variety	C.I.no.	Stem rust (Percent)	Test weight (Lbs.per bu.)	Yield (Bu.per A.)
<i>Common</i>				
Ceres x Hope-Florence N. 2634	--	15	53.5	23.3
Pontad x Marquis R.L.729	11475	3	51.0	19.8
Hope x Ceres N. 1098	11428	15	48.5	18.7
Hope x Reliance N. 1110	11433	8	51.5	18.0
Thatcher	10003	10	51.0	17.3
Hope x Reliance N. 1121	11434	2	51.5	16.9
Hope	8176	T	48.5	15.5
Korar	8004	70	39.0	4.1
Ceres	6900	80	41.5	3.3
Reward	8182	100	42.0	2.4
Marquis	3641	95	40.5	0.1
<i>Durum</i>				
Mindum x Monad A-2-1-2	--	2	56.0	16.8
Monad	3320	1	54.5	16.2
Golden Ball	11477	30	52.5	13.6
Kubanka S.D. 75-3-15	--	10	49.5	13.2
Mindum x Monad A-2-6-1	--	10	49.0	12.4
Kubanka	1440	10	50.0	8.8
Kubanka 75	11541	55	47.0	7.4
Kubanka N. D. 8-lines	--	15	49.0	6.1
Kubanka scl. 132	8383	65	49.5	4.2
Mindum	5296	70	46.0	2.9

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(Sept. 16)

Average yield of winter wheat varieties grown at the Judith Basin Branch Station, Moccasin, Mont., 1935

Four 1/50th-acre plots

Variety	C. I. no.	Yield (Bu. per acre)
Newturk	6935	16.6
Yogo	8033	15.7
Eureka x Minhardi	8036	15.0
Turkey x Minossa	8887	15.0
Kanred x Minossa	8015	14.8
Nebraska No. 60	6250	14.7
Turkey	1558	14.4
Kammet	6700	14.2
Kanred x Minhardi	8040	14.2
Minturki	6155	14.0
Kharkof	1412	13.8
Cheswick	8885	13.2
Turkey sol.	10016	13.0
Minhardi x Minturki	8034	12.9
Turkey x Minossa	11505	12.5
Minard x Minhardi	8889	12.5
Do.	8888	12.1
Minhardi x Minturki	8215	11.2
Minard x Minhardi	8218	11.1

Two 1/50th-acre plots

Minturki x Bel.-Buf. N.N.160	11661	15.7
Turkey x Kanred B.H.25-1	11725	13.2
Kanred x Minhardi 19102 IK-5	11726	12.5

Single 1/50th-acre plot

Minossa x (Bel.-Buf. C.I.5546) B.H.23-2	--	11.0
--	----	------

OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens)
(Sept. 20)

Because of the drought, yields of cereal crops in the Columbia River Basin of Oregon were considerably below normal this year. In some localities, where more winter precipitation resulted in a fair supply of subsoil moisture, normal yields, or better, were obtained. In northern Sherman County wheat yields of from 30 to 35 bushels per acre were obtained, but in the southern half of the county yields were very low, many fields not being harvested.

At Moro, the total precipitation for the crop year, Sept. 1, 1934, to Aug. 31, 1935, was 9.4 inches, and only 2.4 inches for the four months, March to June. There was no precipitation in April or May of benefit to crops. In June a rain of 0.68 inch on the 14th was of some benefit, especially to spring grain.

No excessively hot weather occurred during the summer. The mean temperature for June was 62.9° and for July 68.6°.

Fallow soil is unusually dry. The total rainfall for the two months of July and August was only 0.07 inch. So far this month only 0.2 inch has been recorded.

The following tables give the yields obtained this year in the varietal trials with wheat, oats, and barley at Moro and the results of nursery trials with winter wheat at several locations in eastern Oregon.

Average yield of winter wheat varieties grown in three 1/20th-acre plots at Moro, Oreg., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Weight per bu. (Lbs.)
Rex	10065	21.9	58.3
Fortyfold x Federation	8247	20.3	58.3
Federation	4734	19.9	57.3
Blackhull	6251	19.9	60.9
Fortyfold x Hybrid 128	11700	19.3	60.7
Golden	10063	18.8	58.7
Hybrid 128	4512	17.4	60.7
Chocenne	8885	16.8	61.7
North Powder Turkey	11425	16.5	60.5
Marquis x Kanred	11123	14.9	61.6
Turkey sel.	11124	13.9	60.9
Hybrid 128 x White Odessa	11607	13.9	61.2
Turkey	1571	13.4	60.7
Turkey sel.	10016	13.3	60.9
Rio	10061	13.0	61.5
Kharkof	8249	12.8	61.7
Triplet	5408	12.4	61.5
Kharkof	1412	12.0	61.3
Turkey (local)	4429	12.0	61.2
Oro	8220	11.5	61.3
Ridit	6703	10.7	61.6

Average yield of spring wheat varieties grown in three 1/20th acre plots at Moro, Oreg., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Weight per bu. (Lbs.)
Hard Federation 71	8256	26.1	59.2
Hard Federation 31	8255	25.3	59.1
White Federation	4981	25.1	58.6
Federation	4734	24.8	55.3
Hard Federation	4733	23.5	52.6
Onas	6221	22.9	54.0
Baart	1697	22.7	57.5
Baart x Federation	8244	21.1	54.4
Pacific Bluestem	4067	20.0	51.0
Marquis	4158	17.8	53.7

Yield of spring barley varieties grown in three 1/20th-acre plots at Moro, Oreg., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Weight per bu. (Lbs.)
Peruvian	935	28.8	41.0
Flynn sel.	1311-37	28.1	42.3
Meloy sel.	1176-3	27.8	43.0
Maricout	261	27.6	40.0
Arequipa	1256	26.5	41.2
Flynn sel.	1311-1	26.0	41.5
Trebi	936	23.6	41.5

Yield of spring oat varieties grown in three 1/20th-acre plots at Moro, Oreg., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Weight per bu. (Lbs.)
Threegrain	1950	39.8	27.8
Carleton	2378	39.6	33.7
Siberian	635	37.9	27.5
Richland	787	35.8	30.4
Swedish Select	134-1	35.4	28.1
Logold	2359	34.4	29.6
Markton	2053	33.8	31.4
Sixty-Day	165-1	28.8	31.6

Average yield of 17 winter wheat varieties grown in nursery rows in Sherman, Gilliam, and Wasco Counties, Oreg., 1935

Variety	C.I.no.	Gilliam Mayville	Wasco Maupin	Sherman Kent	Moro	Av.
Fortyfold x Federation	11693	14.3	19.0	10.0	14.4	14.4
Rox	11689	17.4	14.2	11.4	13.8	14.2
Arcadian x Hd. Fcd. (N.N.977)	-	14.6	15.5	10.9	12.6	13.4
Hd. Fcd. x Martin	11488	15.4	16.5	9.7	11.6	13.3
Blackhull	6251	12.3	17.7	7.5	10.1	11.9
Golden	10063	12.5	17.2	7.2	7.8	11.2
Fortyfold x Hd. Federation	11422	11.8	14.5	9.4	8.9	11.2
Marquis x Kanred	11423	13.4	16.9	8.4	5.0	10.9
Fortyfold x Hybrid 128	11700	13.2	14.6	5.2	8.0	10.3
Hybrid 128	4512	12.9	15.2	4.4	7.8	10.1
Fortyfold	4156	13.7	12.0	8.3	6.5	10.1
Oro	8220	9.8	14.9	8.0	4.1	9.2
Turkey scl.	11424	8.5	12.9	6.9	7.7	9.0
Kharkof	8249	9.2	14.4	6.9	5.2	8.9
Chocenne	8885	9.2	13.1	8.5	3.4	8.6
Rio	10061	8.8	15.5	5.3	3.5	8.3
Turkey scl.	10016	8.1	14.0	5.5	4.6	8.1

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat) Roderick Sprague (Sept. 16)

The regular basic copper sulphate, which is sold for use as a dust in controlling diseases of fruit trees, has given very good control of bunt of wheat in experiments conducted in Washington and Oregon. The summary of the past season's trials shows that it was slightly more effective than the 52 percent copper carbonate, and as it sells at about 12 cents per pound (in large lots) it is appreciably cheaper than copper carbonate.

Basic copper sulphate is being manufactured by recently patented processes at a much lower cost than was formerly possible. A confusing factor in connection with the sale of basic copper sulphate is that the form of this dust which is being sold to the wheat growers has not proved so effective in preliminary trials as the regular basic copper sulphate, which was originally developed for use on fruit trees. Therefore, there are on the market (1) regular basic copper sulphate (52 percent), selling at about 12 cents a pound, and (2) special basi-cop, called wheat dust (SI 103) (copper content not revealed), selling at about 15 cents.

The writer feels that satisfactory results will be obtained by the use of the regular basic copper sulphate at the rate of 2 ounces per bushel in any wheat area. It will not reduce the stand; it gives good control in the Pacific Northwest and is cheaper than copper carbonate.

There are not sufficient data either to recommend or condemn the special basic-cop. The preliminary trials indicate that it is more effective than 18 percent copper carbonate but not so effective as 52 percent copper carbonate. It should give satisfactory control in the Willamette Valley and similar areas where control of bunt is more easily attained.

CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)



Vol. 27

October 10, 1935

No. 16

Personnel (Sept. 26 - Oct. 10) and Field Station (Sept. 16 - 30)

PERSONNEL ITEMS

Dr. Charlotte Elliott who returned to Washington on September 20 after a month in Europe, gives the following brief account of her trip:

"The botanical tour, preceding the Congress at Amsterdam gave us a glimpse of several other European countries. While in London we visited Kew Gardens and the Universities of Cambridge and Oxford, and in Paris the Pasteur Institute, the buildings where Pasteur worked, and his tomb in one of the buildings of the Institute. We spent more time in Germany and saw more of German institutions and gardens than of any other country. We were much impressed with the quiet beauty of Bonn University, its Hofgarten of broad lawns and large trees forming a part surrounded by fine old Renaissance buildings. It has an enrollment of 4,000. Here we visited Strasburger's office and lecture room and the herbarium where he worked from 1848 - 1912. The buildings of the College of Agriculture, established in 1934, and including a Research Institute for Plant Diseases, a botanical garden, and greenhouses are a unit by themselves.

"We visited two of the principal German experiment stations. At Nymphenburg, out of Munich, we saw their fertilizer experiment plots and some field corn variety tests. In the Botanic Garden, established in 1914 by Goebel, they have a very fine collection of rhododendrons from the Himalayas, well-labeled study gardens, medicinal and kitchen garden, and genetic flower garden, all for the public. In the greenhouses were very fine collections of orchids, insectivorous plants, mosses, selaginellas, cacti, and succulents. They have room for 100 students in their laboratories and herbarium.

"The other large station was at Dahlem out of Berlin. This is one of the largest botanical gardens in the world and was begun on its present site in 1897. In the greenhouses are collections similar to those at Nymphenburg. The garden differs from other botanic gardens because of Engler's geographical arrangement of plants.

"The German countryside is a very pleasing one, the fields and roadways are trim and well cared for, the roads are lined with lindens, horsechestnuts, and elms; fruit trees and vines are trained against the walls of the houses topped with red-tiled roofs. The farmers were working in the hop fields; the small grains had been cut. The number and size of the shocks indicated a much greater yield than on many of our farms. We saw but little corn and most of that was planted thick for fodder.

"Two days during the meetings were devoted to field trips to universities, laboratories, and markets in Holland. We visited flower and vegetable auctions, greenhouses where grapes were ripening, and Mr. Ricker's experimental plots in southwest Holland. I saw the only plot of sweet corn I saw on the trip. This was Golden Bantam from California seed. At Leyden we visited the National Herbarium which contains large collections from the Netherlands Indies; the botanical garden, which is the fifth oldest in Europe and has some fine old trees, contains a replica of Clusius' garden of 1594. In this replica were some American plants, among them the potato known as Papas amricana.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Cereal Crops and Diseases

October 11, 1935.

LIABILITY INSURANCE ON GOVERNMENT AUTOMOBILES

The following is quoted from memo of The Chief of Bureau dated Sept. 12, 1935:

"It has long been the policy of the Bureau of Plant Industry that employees who may have occasion to drive Government cars carry liability protection for any personal injury and property damage they may cause. It is expected that heads of divisions will see that employees of their Divisions who do not have protection of this character be not permitted to operate Government-owned automobiles or automobiles rented for official use. An employee is also expected to comply with State and local requirements in the matter of driving permits, before being permitted operate a vehicle on Government business. Employees driving Government-owned or Government-controlled automobiles are personally liable for damages they may incur, and the Government will not defend or pay for personal injuries resulting from automobile injuries."

Employees driving Government-owned cars or trucks may be insured against personal liability for property or personal damages in either of two ways:

1. Insurance can be issued on the car in which case any authorized Government employee driving the car will be protected. Application for such insurance should be made by the man responsible for the car; the other employees need not be named. It may be possible to make an arrangement whereby the expense can be shared by all employees driving the car.

Master policies have been issued by:

Roitan-Lerdahl & Co., Pioneer Building, Madison, Wis.

Agents for Lumbermen's Mutual Casualty Co.

Long & Curry, Barr Building, Washington, D. C.

Agents for Ohio Casualty Insurance Co.

Ralph W. Lee & Co., 1508 L Street, N. W., Washington, D. C.

Regarding rates, the first named agency writes as follows:

"The basis of the premium charge is the regular conference premium for the territory and car involved. An immediate 15% fleet discount is allowed on all cars whether one or more, and in addition to this, at the expiration of the endorsement, an estimated 25% dividend is returned to the applicant. The cost is not affected by the number of people who drive the car or cars."

Rates of the other two agencies are:

Public Liability, limits \$5,000/10,000,
Property damage, limit \$5,000, annual premium \$8.00.

Doubtless other companies would issue similar protection but no information is on hand in this office regarding them.

2. An employee now carrying liability insurance on his personal car may, for a relatively small additional premium, purchase protection for himself while driving a Government-owned machine. No other employee driving the same car would be protected by such arrangement.

H. S. Smith.

"In the Microbiological Laboratory at Delft we visited the laboratories where Beijerinck did his work.

"I was much interested in meeting Dr. Van Slogteren, who is in charge of the bulb research laboratory at Lisse, and is known for his work on nematode diseases and the yellow or bacterial disease of hyacinths.

"Among the exhibits at the Congress was one of special interest by Dr. Gerretsen of the University of Groningen. This demonstrated that the gray spot disease of oats is due to bacterial infection of the roots in manganese deficient soil."

Dr. W. E. Stevens returned to Washington on September 27 after a month in Europe. He spent one week in collecting Diplodia in Devon and Cornwall, the warmest counties in England. He obtained a number of apparently good specimens of his pet genus, the study of which will occupy most of his spare time until Christmas.

Dr. Stevens spent one week at the Imperial Mycological Institute and the Imperial Botanical Conference in London. He gained a greatly increased respect for the British method of attacking scientific problems. E. W. Mason, Assistant Mycologist of the Imperial Mycological Institute, convinced him that the fungus on corn culms recently reported by Mackie had already been given two names in the United States. Dr. Stevens was admitted to the Imperial Botanical Conference "as the representative of a former colony of Great Britain." This resembles a corn conference but is larger, has more incidental social functions, and covers a wider field. One day was devoted to pasture research, one to tropical forestry, and one to storage and transportation of fruits and vegetables. In this last field especially the Empire botanists are doing a large amount of very high grade work.

At the Sixth International Botanical Congress in Amsterdam, where Dr. Stevens stayed 10 days, his time was given chiefly to the mycological and nomenclature sessions. Absolutely no progress was made in mycological nomenclature, though very creditable progress was made in other botanical fields, notably paleobotany. There was relatively little discussion of cereal diseases except for Stakman's address on "strains" of fungi and a paper on "take-all", the contents of both of which are already well known to members of the Division. The United States is now for the first time a member of the International Union of Biological Sciences. E. D. Merrill (now of Harvard University) is the new president of the Union and Donald Reddick is vice-president of the Botanical Section.

Dr. Stevens also spent three or four days in various laboratories in Holland and Belgium. Visits in these and other laboratories and talks with many European botanists led to the conviction that a lot of high grade botanical work is being done in northern European countries by the younger botanists in the fields of mycology and plant pathology and that the United States may well look to its laurels within the next 10 or 15 years.

Incidentally, one of the best known and most universally respected botanical products of the United States Department of Agriculture in the countries visited is the Bureau of Plant Industry list of Plant Science Literature.

A large group of Federal and State representatives attended the Conference of Workers in the Corn Belt Cooperative Corn Program, which met at La Fayette, Ind., October 1 and 2 at the call of Dr. M. T. Jenkins.

On the morning of the first day the group inspected Mr. R. R. St. John's breeding nursery and yield test experiments. Dr. N. E. Stevens was chairman of the afternoon session, which was devoted to a discussion of corn disease problems. Mr. Hazen P. English, of the Board of Review of the Grain Standards Acts, Chicago, spoke on total damage as a factor in market grades of corn. The discussions centered mainly around the various methods of determining differences in susceptibility to ear and stalk rots.

At the evening meeting, Dr. Paul Weatherwax, of the Indiana University, discussed the early history and the various theories regarding the origin of corn.

On October 2 the morning was spent in an inspection of the corn work on the Soils and Crops Farm. At the afternoon conference, of which Dr. Jenkins was the chairman, there was discussion of the breeding problems connected with the isolation of disease resistant strains of corn.

The Federal employees named below were present at the Conference: District of Columbia: Dr. E. C. Auchter, Dr. M. T. Jenkins, F. D. Richey, Dr. N. E. Stevens; Illinois: H. P. English, B. C. Frye, Dr. J. R. Holbert; Indiana: Dr. R. M. Caldwell, R. R. St. John, G. M. Smith, J. F. Trost; Iowa: Dr. A. A. Bryan, R. W. Jugenheimer, Dr. M. M. Rhoades; Kansas: Dr. A. M. Brunson; Missouri: Dr. G. F. Sprague, Dr. L. J. Stadler, New York: Dr. L. F. Randolph; Ohio: Dr. V. H. Morris, Dr. J. D. Sayre, G. H. Stringfield; Wisconsin: Dr. J. G. Dickson, P. E. Hoppe.

Among those present from the States were:
 Illinois: W. J. Munn, Dr. C. W. Woodworth; Indiana: K. E. Beeson, Dr. G. H. Cutler, Dr. E. C. Elliott, Dr. H. R. Kraybill, J. A. McClintock, S. R. Miles, M. O. Pence, Dr. C. L. Porter, Dr. R. W. Sampson, Dean J. H. Skinner, J. T. Sullivan, A. T. Wiancko; Minnesota: C. W. Doxator; Missouri: Dr. C. M. Tucker, Mr. Schmidt; Nebraska: Dr. T. A. Kieselbach; Ohio: Dr. R. D. Lewis, Dr. J. B. Park; West Virginia, Dr. C. R. Burnham; Wisconsin: Dr. O. S. Arnoldt, Dr. R. A. Brink.

Dr. V. F. Tapke was at Statesville, N. C., on October 7 and 8 to sow experimental plots dealing with barley smut. These experiments are carried in cooperation with the Division of Forage Crops and Diseases.

RECENT PUBLICATIONS

Removing Smut Balls from Seed Wheat. W. M. Hurst, W. R. Humphries, R. W. Leukel, and E. G. Boerner. U. S. Dept. Agr. Circ. 361, 16 pp., 6 figs. August 1935. (Cooperative investigations of the Bureau of Agricultural Engineering, Bureau of Plant Industry, and the Bureau of Agricultural Economics.)

Flaxseed Production in the North Central States. A. C. Dillman and T. E. Stoa. U. S. Dept. Agr. Farmers' Bull. 1747, 18 pp., 11 figs. September 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

I M P O R T A N T N O T I C E

Individuals who are interested in attending the meetings of the Society of Agronomy at Chicago on December 2 or at the meetings of the American Association for the Advancement of Science at St. Louis during the Christmas holidays should please communicate at once upon receipt of this notice with reference to such attendance. This is necessary in order that official permission may be obtained well in advance of the dates of the meetings without unnecessarily forced attention.

Information relative to the presentation of papers is given below in the B. P. I. Memo. 856 from the Chief of the Bureau. Papers intended for presentation at any of the meetings should be submitted as promptly as possible in order to avoid delays in approval. It creates a bad impression in the Bureau when papers are submitted at the last minute, making it appear as though there might be an attempt to rush papers through without proper consideration.

M. A. McCall.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau

October 4, 1935.

B. P. I. Memo. 856.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

The meetings of the American Association for the Advancement of Science will be held this year at St. Louis, Missouri, December 30, 1935 to January 4, 1936. While I do not know what the policy of the Department will be in regard to attendance, for the past several years the Secretary has approved attendance by members of the Department staff at their own expense other than salary, in addition to one or two Bureau representatives. In order that the matter may be given prompt consideration, I shall appreciate it if you will let me have such recommendations as you may care to make covering attendance at the December meetings.

It is suggested that members of your staff who are to submit abstracts of papers to be presented at the meetings be reminded that these abstracts should be submitted for approval in the near future. In many cases such abstracts must reach the secretaries of the organizations the latter part of October or early November, and it is therefore desirable that they be forwarded to this office for approval promptly, in order that they may be in the hands of the secretaries on the dates required.

It is further suggested that the members of your staff who are to present papers be urged to submit the completed papers as soon as possible. The practice of submitting papers to this office for approval a day or two before the meetings is undesirable. In exceptional cases, papers submitted after December 20 will be given approval. It is requested, however, that so far as possible papers be submitted for approval not later than December 10.

Sincerely yours,

(Signed) F. D. Richey

F. D. Richey
Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies.)

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccomcorn, J. B. Sieglinger)(Oct. 1)

The last half of September was dry with extremes of temperature. Sorghums are drying mature with the exception of the late seedings, which are maturing normally.

Broccomcorn is a light crop on the Station and has been harvested for brush.

The maximum temperature for the last half of September was 97° on the 16th; the minimum for the same period was 49° on the 28th. The precipitation was 0.36 inch, or a total of 1.56 inches for the month.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard)(Oct. 1)

Weather conditions at Woodward continue dry, although rains late in August and on the first of September left sufficient moisture in fallowed plots and in cropped plots to germinate grains. Four plots of Cheyenne wheat sown for rate-and-date-of-seeding experiment on September 16 emerged to good stands 6 days later. A second series of plots was sown on October 1.

Planting lists and seed packets are being prepared. It is expected that nursery seeding will be started about October 10.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis)(Oct. 2)

Seeding of the winter-wheat nursery and the field plots was completed on September 21. All wheat has emerged promptly to good stands. Wheat on fallow is making rapid growth and should produce sufficient top growth to prevent any great soil blowing.

The first killing frost occurred on September 26. The grain sorghums are being harvested. Yields of grain and forage will be fair. Many varieties matured although planted about 10 days later than normal. Farmers in this region probably will have sufficient feed for their livestock.

The maximum temperature for September was 95° on the 19th; the minimum was 28° on the 27th. The precipitation in September was 2.24 inches, as compared to a normal of 1.37 inches.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Oct. 1)

The weather of the last half of September was generally dry with moderate temperatures.

Work during this period consisted chiefly of cleaning seed, checking data, preparing seed for shipment, and tabulating results to supply requests for seed and data.

The few plants of winter wheat that had emerged by the middle of September apparently have succumbed to drought and there has been no further emergence to date.

The maximum temperature was 91° on September 16; the minimum was 27° on the 26th. The precipitation was 0.13 inch on September 24. Freezing temperatures of 28° were recorded on September 25 and 30.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(Oct. 1.)

Dry weather has prevailed since the middle of August, the only precipitation being very light showers. The precipitation for September totaled but 0.07 inch. Temperatures for the month have been mild with a maximum of 93° on September 22 and a minimum of 21° on the 27th.

The precipitation for the 12 months ending September 30 was 14.77 inches; that for the year 1935 to date, 13.77 inches; and for the 1935 growing season, April to September, inclusive, 12.03 inches.

Threshing is completed at the Substation and nearly finished in this district. Many fields of wheat remain unharvested because of the shriveled condition of the grain.

The corn varieties were injured by the first killing frost on August 29. They were harvested early in September and have been husked and the weights of ears and stover determined. Fall sown grain will not emerge until more rain is received.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland)(Oct. 1)

The winter-wheat nursery has been seeded in dry soil and will not germinate until additional moisture is received. The field plot test of winter-wheat varieties was seeded September 25 and so far has not germinated. This is the driest fall experienced here for years and all winter-wheat seedlings are in very poor condition. Most of the winter wheat seeded in this vicinity has not germinated and that that has is very spotted and growing in a weakened condition.

The precipitation for September was 0.18 inch. The maximum temperature was 89° on the 14th, the minimum, 24° on the 26th, and the mean 56.8°.

The yield and test weight of 21 spring-wheat varieties grown at the Judith Basin Branch Station, Moccasin, Montana, in 1935 are shown in the following table.

Average yield and test weight of 19 spring-wheat varieties grown at the Judith Basin Branch Station, Moccasin, Mont., 1935

Variety	C.I.no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Hard Red Spring			
Comet	11465	15.5	59.0
Supreme	8026	14.6	60.0
Kota x Marquis	10014	14.5	60.5
Ceres	6900	14.2	60.0
Thatcher	10003	14.0	57.0
Kota x Marquis	11549	13.7	61.0
Canus	11637	13.4	60.5
Hope x Ceres N.N.1098	11428	12.2	58.0
Hope x Reliance			
N.N.1121	11434	12.2	59.5
Marquis	3641	12.0	60.0
Reward	8182	11.9	60.0
Reliance	7370	11.1	59.0
Power	3697	10.4	60.0
Marquis sel. (Richmuth)	--	10.2	59.5
Hope	8178	10.1	56.0
Hope x Reliance			
N.N.1110	11433	9.9	60.0
White			
Baart	1697	18.6	61.0
Federation	4734	13.7	59.0
Durum			
Kubanka	1440	8.2	60.5

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Oct. 1)

Clear, warm weather continued throughout September the mean temperature being 61.4°. There was only 0.17 inch of precipitation, or a total of 0.46 inch for the past 4 months. The total precipitation since January 1 is 9.35 inches, which partly accounts for the constant good flow of water in the streams.

The first killing frost occurred on September 28, with a minimum temperature of 28°, making a frost-free period of 136 days for 1935.

Practically all corn and grain sorghum varieties have matured in the principal agricultural sections of the State. Corn was especially poor in a number of counties, however, owing to worm injury, smut, and the lack of well-developed ears. Grain sorghum varieties, including Red Amber, Sooner milo, and Dwarf Hogari, appeared much better than corn in several tests conducted under the same conditions.

A large part of the winter-wheat seeding has been completed, although the soil is extremely dry. Commercial fields are also being sown quite generally over the dry farm area of the State.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (Oct. 1)

The harvesting of the California rice crop will be from one to two weeks later than normal. Harvesting of a few early fields has started but will not be general before October 10. It appears that the California rice yields this year will be as high as the average yields.

The average maximum temperature for September was 89.7° and the average minimum temperature 53°. These temperatures are about normal. On September 14 there was 0.40 inch of rain.

Due to the late seeding of rice last spring and the lateness of maturity this fall, many of the rice hybrids in the nursery are hopelessly late. In normal seasons most of the varieties have been as early as Caloro but this year many are as much as 20 days later. This is especially true in hybrids having one parent of the long or medium grain type of a Southern rice variety. The length of day seems to be responsible for these differences this year.

At the present time Mr. Jenkin W. Jones is on the Station studying rice varieties and making selections from hybrid material.

CEREAL COURIER

NOV 10 1935
NY

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27.

October 25, 1935

No. 17

Personnel (Oct. 11 - 25) and Field Station (Oct. 1 - 15)

PERSONNEL ITEMS

Dr. M. T. Jenkins recently spent three days at Canal Point, Florida, to arrange for an experimental planting of corn breeding material to determine the feasibility of raising a winter crop of corn in that section. The planting is near the field headquarters of Sugarcane Investigations of the Division of Sugar Plant Investigations.

Mrs. A. M. H. Karrer of this Division was one of the 15 persons from the U. S. Department of Agriculture in Washington who attended the Sixth International Botanical Congress in Amsterdam in September. Of the 962 persons registered at the Congress 120 were from the United States. Delegates from such countries as India and Egypt helped to give the Congress an international flavor. Although many Russians were registered, apparently none were present. In spite of the large number of members speaking German, French and Dutch over fifty percent of the papers given in the physiology section, which Mrs. Karrer attended, were in English.

Arrangements for the convenience and pleasure of those attending were unusually effective and greatly appreciated. For instance, Mrs. Karrer says that although the arrival of the botanical group with which she was traveling had not been announced so far as she knew, they were met at 9 o'clock at night at the train, taken to their hotels, and offered the loan of Dutch money until they should be able to obtain some. A boat excursion around the harbor and vicinity was supplied by the City of Amsterdam, including refreshments served on board. An evening reception given by The Netherlands Government at the Rijksmuseum was made especially interesting by opening the galleries containing the special exhibition of Rembrandt pictures held there this summer. At another reception given by The Netherlands Botanical Society the members were entertained by Javanese dancers.

Of the laboratories visited in Europe, most memorable are those at the Pasteur Institute in Paris where a glimpse was had of an employee who as a boy received from Pasteur the first treatment given for rabies; Strasburger's laboratory at the University of Bonn, where heat is still supplied by stoves and where the assistant greeted the group with "Heil Hitler"; the succession of well arranged laboratories for microscopic work at the Botanical Institute in Munich where two tiers of desks, one raised above the other, faced the large north windows; the herbarium and library on the top floor of the Natural History Museum in Vienna heated by large stoves and reached by a climb up some 140 steps (an elevator accident in the city when the building was being built led to elimination of elevators from the plans); the well-equipped laboratories and experimental gardens of the Kaiser-Wilhelm Institute at Dahlem in Berlin where such a small amount of space has sufficed for so much great work. Mrs. Karrer found the water-culture technic of especial interest at this Institute. The fine new laboratories for cryptogamic and phanerogamic botany of the National Museum of Natural History in Paris were endowed by Rockefeller.

The tour was made in August when many of the laboratories were deserted and little experimental work was to be seen. An exception was the Bavarian Agricultural Institute in Munich where numerous greenhouse and field experiments were to be seen. It was surprising to find them using sodium chloride in weed control experiments here. Chlorates were considered too expensive. Of special interest, too, was the emphasis being placed on the danger of the increasing use of synthetic fertilizers lacking the essential rare elements.

In Holland, many botanical and agricultural problems naturally are connected with the various reclamation projects involving sand dunes, peat bogs, and drained sea floors. The physiologists have a number of problems arising from the presence of salt in the reclaimed soils. The agriculturalists are studying the comparative resistance of different crops to the salt. After hearing of the work on salt for weed control in Munich, one wonders whether the reclaimed sea soils of the Netherlands are troubled with weeds.

The most impressive exhibit of experimental work seen in the Netherlands was at the Laboratory for Technical Botany at Delft. This institution is unique in being devoted solely to experimentation on practical uses of plant products. The Netherlands Government's method of handling the problem of excess wheat production was also shown here. The excess grain is simply "denatured", that is, a certain percentage is dyed so that it cannot be used for anything but stock feed.

At the plant physiology laboratories of the University of Amsterdam Mrs. Karrer was especially interested in the automatic recording porometer that Dr. Pinkhof has developed there. A continuous record of the opening and closing of the stoma in a leaf of a plant in the greenhouse on the roof is traced on a chart in the laboratory below. Also of interest in this laboratory were the neon lamps they have developed for irradiation of greenhouse plants in the winter time. This lamp is claimed to be cheap, easily workable, and especially well adapted for accelerating the growth of plants.

Messrs. R. W. Leukel and R. J. Haskell on October 24 visited the offices and warehouses of Messrs. T. W. Wood and Sons, and other seedsmen, of Richmond, Va., to gather information on the methods of seed treatment and the extent to which they are being employed this fall as well as on the general results of last year's seed treatment operations.

The automatic seed treating equipment installed in July by Messrs. Hurst and Leukel (see Cereal Courier 27(11): 74. July 25, 1935) has been operating satisfactorily and continuously since that time. More than 52,000 bushels of grain have already been treated, and it is expected that the season's total will exceed 100,000 bushels, or more than twice the output of last year.

The keen demand for treated seed, together with the satisfactory operation of the automatic treater, has led to the installation of a second machine patterned after the one already in use. The seed is fed into these treating machines directly from the seed cleaning equipment, thereby eliminating the former intermediate manual operations of sacking, trucking, and dumping the seed into the treater and intermittently adding the dust fungicide. The new method practically eliminates the labor cost of treating and leaves only the cost of materials. New Improved Ceresan (5 percent ethyl mercury phosphate) is used for wheat, oats, and barley applied at the rate of 1/2 ounce per bushel. No extra charge is made for treated seed, as compared with untreated seed.

On the whole, the reports from last year's treating operations were very favorable. Disease control was satisfactory and no cases of seed injury were reported.

Dr. S. C. Salmon recently spent a few days in Minnesota and Iowa in the interests of weed investigations. He made tentative arrangements for starting field experiments relating to bindweed control at Lamberton, Minn. He also examined the experiments that are being conducted by the Iowa Agricultural Experiment Station at Hawarden, Iowa, in which the Department is participating this year. Dr. Salmon spent a day at Ames with officials of the Iowa station in a discussion of the weed program.

Dr. Salmon also made a trip to Fargo, N. Dak., and Brookings, S. Dak., to investigate the seed wheat situation for next spring.

RECENT PUBLICATIONS

The Antigenic Properties of Plant Viruses. H. H. McKinney. Science n. s. 82(2125): 276-277. September 20, 1935.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)(Oct. 16)

With the exception of two short periods, good harvest weather prevailed in September.

The total precipitation of 5.40 inches was 1.64 inches more than for September last year and 1.41 inches more than the 25-year average.

While the precipitation was above normal, it interfered very little with rice harvest because most of it fell on three days. Low temperatures and northerly winds were of great benefit in curing the crop.

The mean temperature for the month was the same as for last year. The extremes were much lower, however, making the month, as a whole, cooler than any other September since 1928.

The good weather tempted many farmers to harvest rice before it was fully mature and to thresh before it had been in the shock long enough to thoroughly cure.

Rice harvest on the Station was kept up to date and cotton picking was completed. Cotton yields were much higher than usual. The gross yield from the same number of plots was more than double what it was last year.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broccoli, J. B. Sieglinger)(Oct. 16)

The weather of the first half of October continued dry. Sorghums are ripening although many are drying ripe. Seed heads are being harvested as rapidly as possible, as the plants will lodge or go down owing to drying rather than to any heritable weakness.

Yields will be slightly better than in 1934 but that is not much in view of the bad conditions of last year.

The maximum temperature for the first half of October was 90° on the 2nd and the minimum 44° on the 5th. The precipitation was 0.01 inch.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement,
V. C. Hubbard)(Oct. 16)

Eight wheat plots of a rate-and-date-of-seeding experiment were sown on October 1 (four plots on fallow and four plots on cropped land) and emerged to good stands on October 5.

Twenty winter-wheat varieties were sown on October 10 on fallowed and on cropped land. Those on fallowed land were emerged on October 16. Only a few plants have emerged on the cropped land.

Seeding of the nursery was delayed until October 15 in the hope that rain might fall. No rain of any moment has fallen since September 24 and only 0.35 inch on that date. The soil is very dry to a depth of about 3 inches. The nursery material is being seeded deep but even so germination will perhaps be uneven without rain.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement,
J. J. Curtis)(Oct. 12)

Average yield of oat varieties grown on four 1/50th-acre plots (2 plots on fallow and 2 on cornland) at the U. S. Dry Land Field Station, Akron, Colo., 1935

Variety	C. I. no.	Yield (Bu. per acre)
Brunker	2054	46.7
Kanota	839	42.2
Early Rustproof	2823	42.0
Fulghum (H. C. 713)	3228	44.1
Columbia	2820	40.9
Fulghum (H. C. 726)	3227	40.7
Trojan	2491	40.1
Richland	787	33.4
Kherson	459	31.4
Franklin	2892	30.7
Richland sol. 52	3008	28.4
Colorado No. 37	619	17.7
Swedish Select	134	15.5

SOUTH DAKOTA

SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION, BROOKINGS (K. H. Klages)
[October 24]

Average yield and test weight of spring wheat varieties grown in three 1/60th-acre plots at the South Dakota Agricultural Experiment Station, Brookings, S. Dak., 1935

Variety	C.I.no.	Stem rust (P.ct.)	Yield (Bu.per A)	Test wt. (Lbs.)
Hard Red Spring:				
Thatcher	10003	4	26.0	55
Ceres x Hopo-Florence	11640	23	24.9	54
Hope x Ceres	11428	10	21.8	51
Hope x 1656.97	11471	8	19.9	55
Hope	8178	2	17.8	52
Reward	8182	77	16.8	52
Komar	8004	67	13.2	47
Ceres	6900	78	6.5	45
Reliance	7370	78	6.2	34
Marquis	3641	87	5.3	40
Durum:				
Mindun	5296	40	17.3	52
Arnautka	--	37	17.1	54
Kubanka	1440	35	13.9	52

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith)(Oct. 17)

Mild, dry weather has prevailed so far in October. Only a trace of precipitation has occurred. The soil has been too dry for the germination of fall-sown grains.

Acre yields of spring wheat, oats, emmer, barley, and flax varieties grown in replicated field plots in 1935 are given in the following tables.

Yield of spring wheat and emmer varieties grown on four 1/56th-acre plots (2 on fallow and 2 on cornland) at the Dickinson Substation, 1935

Variety	C.I.no.	Stem rust (P.ct.)	Yield (Bu.per A.)	Test wt. (Lbs.)
Hard red spring:				
Ceres x Hope-Florence	11708	2	18.5	55.5
Hope x Ceres (N.N.1098)	11428	2	17.3	54.5
Hope x 1656.97 (Ns.2421)	11471	T	16.5	55.5
Konar	8004	12	15.6	54.0
Thatchor	10003	5	15.2	53.0
Hope	8178	T	14.8	54.0
Reward	8182	20	14.1	56.0
Ceres	6900	15	13.8	52.5
Hope x Reliance (N.N.1121)	11434	T	13.2	51.0
Hope x Reliance (N.N.1131)	11435	T	12.6	54.0
Comet	11465	50	10.3	49.5
Reliance	7370	30	10.3	49.5
Marquis	3641	30	10.0	50.0
Supreme	8026	25	7.2	49.0
Red Fife	3329	50	5.1	46.0
Haynes Bluestem	2874	50	4.1	43.5
Durum:				
Pentad	3322	T	16.3	59.0
Mindum	5296	8	14.5	58.0
Kubanka 1/	1440	18	13.7	57.0
Kubanka 132	8383	18	8.2	54.0
Emmer:				
Karoslaw	1526	-	30.5	--
Vernal	3686	-	30.3	--
1/ Poor stand.				

Average yield of oat varieties grown on four 1/56th-acre plots (2 on fallow and 2 on cornland) at the Dickinson Substation, 1935

Variety	C.I.no.	Yield (Bu. per acre)
Richland Sel. 52	3008	39.9
Gopher	2027	39.2
Khorson	459	39.1
Edkin	2330	37.6
Carleton	2378	36.8
Iogold	2329	35.8
Markton	2053	35.3
Rainbow	2345	31.9
Minrus	2144	31.6
Wayne	2567	30.2
Swedish Select	134	27.6
Anthony	2143	27.3
Victory	560	25.5
Rusota	2343	23.9

Average yield of barley varieties grown on four 1/56th-acre plots (2 on fallow and 2 on cornland) at the Dickinson Substation, 1935

Variety	C.I.no.	Yield (Bu.per acre)
Steigum	907	28.6
Trebi	936	28.1
Manchuria	244	25.8
Horn	926	25.7
Lion	923	25.4
Hannchen	531	24.6
Odessa	182	24.2
Glabron	4577	23.0
Rogal	5030	21.5
Wisconsin No. 38	5105	19.8
Colossal	2792	19.0
Svansota	1907	18.4
New Composite Cross	5461	18.3
Velvet	4252	17.5

Average yield of flax varieties grown on three 1/56th-acre plots on corn-land at the Dickinson Substation, 1935

Variety	C. I. no.	Yield (Bu.per acre)
Redwing	320	5.2
Hybrid 167 x 179	476	4.5
Bison	389	4.3
Sib 206	473	3.9
N. D. R. 114	489	3.8
Rio	280	3.5
Walsh	645	3.4
Linota	244	3.3
Nowland	188	3.0
N. D. 40,046	492	2.7
Buda	326	1.3
Golden (Long)	735	1.3

MONTANA

NORTHERN MONTANA BRANCH STATION, Havre (M. A. Bell) [October 24]

Average yield and test weight of 18 spring wheat varieties grown on fallow in three 1/50th-acre plots at the Northern Montana Branch Station, Havre, Mont., 1935

Variety	C.I.no.	Yield (Bu.per acre)	Test wt. (Lbs.)
Hard Red Spring:			
Comet	11465	13.6	57.8
Reliance	7370	12.2	58.0
Supreme	8026	12.2	58.7
Supreme (Havre sel. 59)	-	11.7	58.9
Red Bobs (Univ. 222)	-	11.7	56.1
Thatcher	10003	11.4	54.2
Reward	8182	11.4	58.9
Marquis (Foundation)	-	10.8	57.8
Reliance x Hope	11434	10.8 ^{1/}	56.3
Ceres	6900	10.8	58.2
Marquis	3641	10.6	58.0
Supreme (Havre sel. 66)	-	10.6	58.4
Canus	11637	10.6	57.0
Hope	8178	9.7 ^{1/}	53.8
Durum:			
Peliss	10001	8.3	57.8
Kubanka	1440	6.9	58.7
White:			
Baart	1697	12.8	58.9
Federation	4734	11.9	56.3

1/ Hard to thresh.

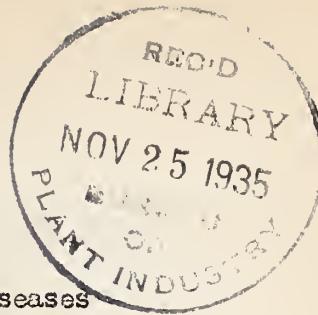
JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (Oct. 16)

There has been a continuation of the drought for the past two weeks. Fallow fields do not have sufficient moisture to maintain a normal growth of winter wheat or to germinate the seed in some instances. Plot and nursery seedings on the Station have failed to germinate.

The yield of oat varieties grown at the Judith Basin Branch Station in 1935 are given in the accompanying table.

Average yield of 12 oat varieties grown in 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1935

Variety	C. I. no.	Yield (Bu. per acre)
Selection 357-185	--	25.0
Carleton	2378	24.8
Markton x Victory	2606	23.6
Selection 357-169	--	23.3
Markton x Swedish Select	2655	22.5
Gopher	2027	21.7
Selection 357-168	--	21.3
Sixty-Day	165	20.8
Idamino	1834	20.3
Markton	2053	20.2
Markton x Idamino	2576	19.7
Swedish Select	131	18.8



CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27.

November 10, 1935

No. 18

Personnel (Oct. 26 - Nov. 10) and Field Station (Oct. 16 - 31)

PERSONNEL ITEMS

Dr. M. A. McCall recently accompanied Dr. E. C. Auchter and Dr. Victor R. Boswell on a short trip into the Southeastern States for the primary purpose of observing production problems in the truck-producing areas. Stops were made at Willard and Wilmington, N. C., Charleston, S. C., Tifton, Cairo, and Albany, Ga., and Meridian, Miss.

At Willard, N. C., the work of the Division of Fruit and Vegetable Crops and Diseases, cooperating with the North Carolina station and the State Department of Agriculture, was inspected. This includes extensive research on strawberry and cane-fruit breeding and bulb growing, together with some work on the Muscadine grape. The Division of Nematology is also carrying certain work on strawberry dwarf at this Station. In the Wilmington area visits were made to the farms of several extensive truck shippers and to one of the largest bulb producing farms, all of these growers producing for the northern markets.

At Charleston, S. C., considerable time was spent in going over the cooperative work of the Division of Fruit and Vegetable Crops and Diseases at the South Carolina Truck Station near Charleston and visits were made to farms of commercial truckers. This is one of the most important and intensive truck-producing areas visited on the trip.

In south Georgia, while there is produced a considerable quantity of truck crops for shipment, there has also been developed a very extensive industry in the production of plants for use by northern growers. Tomato, cabbage, and other plants are produced in quantities and shipped in carload lots to northern producers. This industry is developing certain serious problems which are particularly interesting from the standpoint of possible future investigations. At Cairo a stop was also made at the cane sirup station of the Division of Sugar Plant Investigations. This Division has plantings of some 40 acres in varietal and other experiments, which are proving of great value for growers in that area. Mosaic-resistant varieties distributed from the Station are having marked effect in increasing profits to the producer. At Albany, the Division of Fruit and Vegetable Crops and Diseases is conducting extensive experimentation in pecan culture. The problems of the pecan producers are acute and the demand upon the Department personnel for advice and assistance is large. The future of this industry in that area seems to depend very directly on the success of the research program.

At Meridian, the Division of Fruit and Vegetables Crops and Diseases has a pecan station. At this point there are also important truck and strawberry problems to be met. The Station is a new one and has not yet been able to develop any extensive research program. Most of the time has, of necessity, been devoted to development activities. There is now available a very fine plant and the prospect for future progress is most favorable.

While the problems of the truck and pecan industries seem to be entirely different from those of cereal production, there are a number of factors intensely interesting to the agronomist. Soil and nutritional problems are more acute than in cereal production and of necessity physiological research is receiving emphasis not at present evident in the cereal field. There is reason to believe, however, that cereal research would be materially advanced through taking advantage of experience in these fields and of likewise developing physiological aspects.

In the southern area at the present time growers are dependent on varieties and strains of truck crops developed by seedsman in the northern areas. In many instances these fail to meet requirements in the South and there is definite need for an active breeding program to develop new varieties and strains for that area. In cereal work this, of course, has been our most important activity and the agronomist can appreciate the importance as well as some of the difficulties which the horticulturists are facing in meeting this situation. From the standpoint of broadening interests and of getting ideas which might well be used in our own program, it is suggested that all of us make a point of contacting horticultural workers as opportunity presents itself and of discussing their problems and research with them. Without question the mutual advantage of such contacts will be reflected in better results in both lines of activity.

RECENT PUBLICATIONS

The Development of Sorghum Culture in Kansas. A. F. Swanson. Kans. State Bd. Agr. 29th Bienn. Rept.: 165-174, figs. 30-34. 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

A Comparison of *Leptosphaeria salvinii* and *Hemimelathosporium sigmoidum irregulare*. E. M. Cralley and E. C. Tullis. Jour. Agr. Research 51(4): 341-348, figs. 1-4. Aug. 15, 1935. (A joint contribution from the Department of Plant Pathology, Arkansas Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

The Production of Barley Seed through Post-Harvest Pollination. Merritt N. Pope. Jour. Heredity 26(10): 411-413, figs. 11-12. October 1935.

A Bath for Orienting Objects in Paraffin. Merritt N. Pope. Science (n.s.) 82(2128); 356. Oct. 11, 1935.

The Wheat Meal Time Fermentation Test. C. O. Swanson and John H. Parker. Northwest. Miller (Production Ann.) 184(2): 14-16. Oct. 16, 1935. (Cooperative investigations of the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) [Nov. 2]

Harvest and selection work required full time in the field until about October 10. It will take two weeks more to harvest all the F₁ and the last F₃ selections of Rexoro x Blue Rose. The latter began flowering about July 27 and continued until October 20, a period of nearly 3 months. This is a striking example of transgressive segregation.

An idea of the range in flowering time of varieties of rice grown at this Station may be had from the following list: Bozu, June 20; Colusa, July 17; Nira, August 12; Blue Rose, August 20; Rexoro, September 1; Patna, September 28; and Perennial, October 25. The Patna fails of a complete set of seed. The Perennial, of course, has practically no chance of maturing; it is only in occasional seasons that panicles emerge.

Threshing of nursery material will not be done for some time, since arrangements must be made for a thresher.

Mr. W. Poggendorff, of Australia, visited in Crowley from October 23 to 26. He was much interested in the hot-water method of emasculation, which was tried here this year. Crossing by this method was about 33 percent successful, as compared to 26 percent for the method used last year by which the anthers were removed with forceps.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, P. B. Dunkle) (Nov. 1)

The September rainfall of 7.36 inches was 4.92 inches above normal and the distribution was such that very little field work was possible. However, land for experimental seedings of fall grains was plowed.

The preparation of seed beds was facilitated by 0.70 inch of rain on October 9 and 10 and seeding was begun on the 15th and 16th. Field plots of wheat, oats, and barley varieties; the fertilizer test plots of wheat; the rotation plots of wheat; and the one acre of advanced soft winter wheat nursery were sown before the rains which began on October 21 stopped operations. The seedings yet to be made include one acre of the hard red winter wheat nursery and one acre of the oats and barley nursery. Frequent showers from the 21st to the end of the month kept the soil wet and it is likely that seeding cannot be resumed before the middle of November. The seedings made from October 15 to 20 were up to excellent stands at the end of the month.

Volunteer grain in the vicinity of Denton has made very rapid growth since emergence the first part of September. Some volunteer Fulghum oats on the substation have been in full head since Oct. 24. All volunteer grain that has not been pastured is tall enough to cut for hay and may come into head if killing frost or cold weather does not come soon.

The wheat varietal test plots and the winter wheat nursery at Amarillo were sown in dry dirt Oct. 2. About 1 inch of rain has been reported at Amarillo since, and it is assumed that all seedings are up. The land is furnished by the city of Amarillo and as the city water wells are nearby water for irrigation will be furnished free when needed. About 50 acres of city land will be seeded with certified Tenmarq wheat. The seed will be distributed to farmers in the Amarillo territory.

The cooperative varietal tests of wheat to be grown by farmers at three different points in the Panhandle could not be sown at the time of delivery of the seed on Oct. 1, because of insufficient moisture for germination. No word has yet been received that these tests have been seeded by the cooperators.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Nov. 2)

The weather of the last half of October was favorable for winter small grains but too moist for best working conditions with sorghums. Seed heads are being collected as rapidly as possible and all of the plots for grain yields have been headed. The temperature of 28° on Oct. 31 stopped further development of sorghums.

The maximum temperature for the last half of October was 85° on the 16th and the minimum 28° on the 31st. The precipitation was 2.31 inches in seven measurable showers.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (Nov. 2)

Gentle rains since October 15, amounting to 2.31 inches, brought about prompt and uniform germination of drilled and space-planted nursery and varietal plots. Germination of wheat seeded on cropped land before the rains was very uneven and approximately 3 days later than that seeded on fallowed land where germination was prompt and uniform.

Poisoned oats distributed in the nursery killed seven jack rabbits that had been digging wheat in the nursery. The poison was strong enough to kill a crow that feasted on one of the dead rabbits.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, C. A. Suneson) (Nov. 1)

The past season has been characterized by (1) the latest wheat harvest in the history of this Station; (2) intense heat and drought during July and August, surpassed only in 1934; (3) early September rains, permitting seed bed preparation six weeks after the optimum date; and (4) a very droughty period from early September to October 17. The rainfall since then has totaled 2.25 inches, or 0.35 inch above the October normal, and all wheats have emerged. Very little wheat or rye has as yet attained sufficient growth to permit pasturing, and many fields show evidence of uneven emergence. This late wheat may fail to react to the tillering stage before it goes into the winter and will be especially susceptible to freezing. A severe freeze (26°F.) occurred on October 5 and a seasonal low of 15° was recorded last night.

Extensive artificial freezing studies have been planned. Field grown plants will be used almost entirely this year in four general lines of investigation: (1) Seed source factors; (2) hardening factors; (3) pruning studies; and (4) rigorous selection from bulk hybrid populations for smut and cold resistance.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Nov. 1)

The mild weather in October was interrupted by a cold wave during the last week; the temperature dropped to a minimum of 5° on Oct. 31. The maximum was 81° on the 15th. The precipitation for October was only 0.01 inch.

With the arrival of wintry weather the chances of the fall germination of the winter grain are diminishing. Early spring germination probably would be more likely to produce a fair crop than germination in November.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (Nov. 1)

Rain was recorded about the middle of the month and winter wheat that was seeded in dry soil the latter part of September has sprouted. However, growth was stopped by low temperatures and is now at a standstill.

The maximum temperature was 78° on the 1st and the minimum 5° on the last 3 days of the month. The mean temperature was 43°. The precipitation was 1.46 inches.

The yields of the barley and flax varieties grown in plot experiments are given in the following tables.

Yield of 14 barley varieties grown in 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1935

Variety	C. I. no.	Yield (Bu. per acre)
Selection	5414	17.0
Selection	5429	16.5
China	4197-1	15.6
Atlas	4118	14.6
Selection	5431	14.6
Selection	5438	14.4
Mechanical Mixture	4115	14.1
Trebi	936	13.7
Coast	690	13.5
Composite Cross	4116	13.5
Composite Cross (New)	5461	12.5
Horn	926	10.3
Himalaya 1/	620	7.3
Hannchen	531	3.6

1/ Hull-less. Yield calculated on basis 48 pounds per bushel.

Yield of flax varieties grown on 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1935

Variety	C. I. no.	Yield (Bu. per acre)
Redwing	499	2.5
Bison	389	2.1
Rio	280	1.9
Linota	244	1.3
Selection	739	1.3
Newland	188	1.1
Selection	737	1.0
Sib No. 206	473	0.9

IDAHO

ABERDEEN SUBSTATION, ABERDEEN (Cereal Agronomy, Harland Stevens) (Nov. 6)

The temperatures for October were slightly below normal with an average minimum of 28° as compared to the 23-year average for October of 30°. A temperature of 12° on October 23 and the dry soil caused severe damage to potatoes still in the ground. The loss was quite extensive in the Snake River Valley of Idaho. The total precipitation was 0.74 inches compared to the average of 0.98 inches. As 0.60 inches of moisture fell on October 15 it was of considerable benefit to the winter wheat. On November 4 the minimum temperature was -2°, the coldest ever recorded at the Substation so early in November.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Nov. 1)

Fall seeding has been delayed by snow and a sudden drop in temperature on October 28 and 29. The snow was largely melted by the following evening, but a minimum temperature of 5° on the night of October 30 froze the surface of the soil. Such cold weather so early in the fall is unusual for this section, and many farmers were caught with their seeding only partly completed.

The mean minimum temperature for October was 33.2° and the mean maximum 68.8°. The precipitation for the month was 1.31 inches.

UTAH

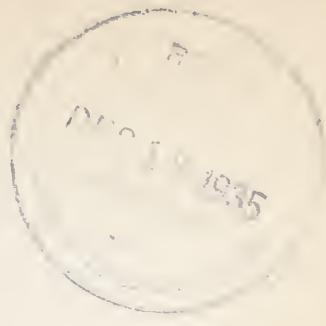
AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Nov. 1)

The first 15 days of October were unseasonably warm and no frosts were recorded. Since that time the weather has been unusually cold and on several nights the minimum temperature was 15° and less. The actual lowest temperature was 12° on the 30th. So far as records at the Station are concerned this is the lowest temperature recorded for October. The precipitation for the month totaled 1.23 inches, as compared to the mean of 1.50 inches for October. The evaporation was about normal, while the mean temperature of 45° is slightly below the normal.

Owing to the extreme cold and the snow fall work has been greatly retarded. However, most of the Station work is now completed except for minor smut tests which have been upset by weather changes. Most of the regular seedings, as well as commercial fields of grain, are emerging at this time.

Corn yields range around 60 to 70 bushels per acre for the leading varieties both at Logan and in the counties where data are complete and calculated. Grain sorghum yields will be slightly higher than for corn, although sorghums are the poorest this year since the tests were begun in 1931.

Dr. J. H. Martin was a Station visitor during the latter part of September in the interests of sorghum work.



C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

No. 19

November 25, 1935

Personnel (Nov. 11 - Nov. 25) and Field Station (Nov. 1 - 15)

PERSONNEL ITEMS

Mr. J. C. Brinsmade, Jr., left Washington on November 16 for his headquarters at Mandan, N. Dak. He spent about three weeks in conferences with personnel of the Division on cooperative seed flax experiments and in the preparation of a manuscript.

RECENT PUBLICATIONS.

An Effective and Easily Applied Method of Inoculating Seed Barley with Covered Smut. V. F. Tapke. (Phytopath. Note) Phytopathology 25(11): 1038-1039. November 1935.

Inheritance of Earliness and Length of Kernel in Rice. Jenkin W. Jones, C. Roy Adair, H. M. Beachell, and Loren L. Davis. Jour. Amer. Soc. Agron. 27(11): 910-921. November 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arkansas, Texas, and California agricultural experiment stations.)

NOTICE OF MEETINGS

The twenty-eighth annual meeting of the American Society of Agronomy will be held on December 5 and 6, 1935, at the Hotel Stevens in Chicago.

The American Association for the Advancement of Science and affiliated societies will meet at St. Louis, Mo., from December 31, 1935, to January 3, 1936.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Nov. 15)

The weather conditions in October were ideal for the cutting and threshing of rice. The total precipitation was 0.77 inch and fell on 5 days. Only three times in the past 25 years has the precipitation been as low or lower for the month of October. The 25-year average precipitation for October is 3.68.

Temperatures were rather high, the maximum being 89°. The minimum for the month was 47°. The highest minimum was 69°.

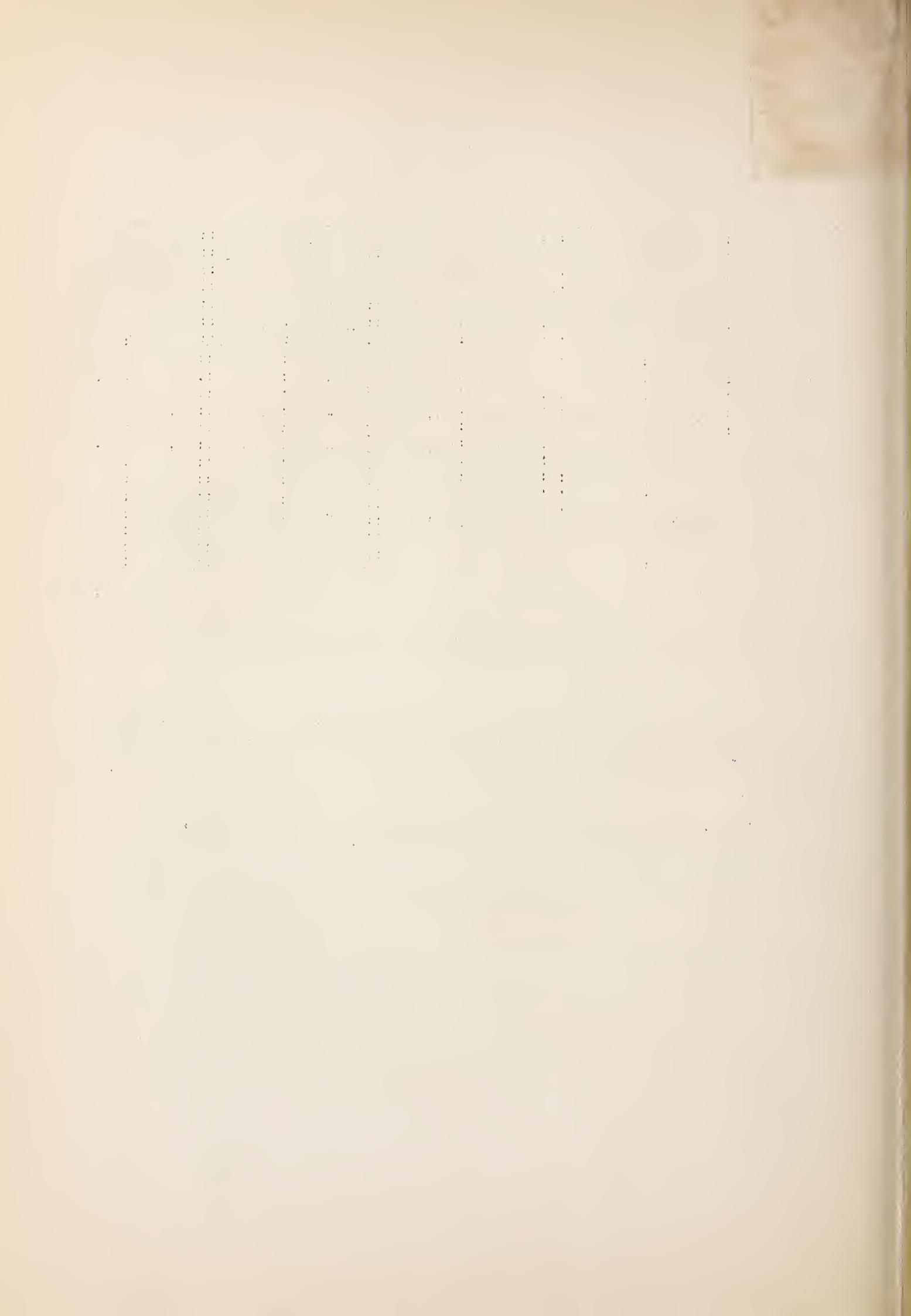
Farmers were practically through threshing by the end of the month. Reports indicate that the yields of rice will be higher than those of last year. Good prices and rather heavy demand prevailed during October. Long-grain varieties have been in heavy demand, particularly Rexoro, in spite of a considerable increase in acreage over last year, in this and some of the other long-grain varieties.

According to the "Estimate Rice Acreage 1935", compiled by The Rice Millers' Association July 1935, the acreages of three rices released by the Rice Experiment Station at Crowley were as follows:

Variety	Louisiana		Texas		Arkansas		Total for the three States	
	Years		Years		Years		1934	1935
	1934	1935	1934	1935	1934	1935		
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Fortuna	13,629	19,811	2,564	9,273	-	-	16,193	29,084
Nira	2,080	11,668	298	2,095	-	1,700	2,378	15,463
Rexoro	6,283	16,483	8,500	14,760	-	-	14,783	31,243
Total	21,992	47,962	11,362	26,128	-	1,700	33,354	75,790
Increase								42,436

Work on the Station proceeded satisfactorily during the month. All plots were harvested except a few late-maturing varieties in the nursery and in the date-of-seeding experiment. Threshing of large plots was started the latter part of the month and will be completed within the next week if weather conditions permit.

Mr. W. H. Poggendorff, Rice Breeder, Department of Agriculture, New South Wales, Australia, was a visiter October 24 to 26.



CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 27

No. 20

December 10, 1935

Personnel (Nov. 26- Dec. 10) and Field Station (Nov. 16- 30)

PERSONNEL ITEMS

Dr. M. A. McCall, Dr. M. T. Jenkins, and Dr. S. C. Salmon attended the meetings of the American Society of Agronomy in Chicago on December 5 and 6. The attendance was unusually large and the programs were excellent. A reorganization of the Soils Division of the Society was effected. The plan as submitted by the Organization Committee and printed in the November issue of the Journal was adopted essentially as proposed.

At the business meeting of the Crops Division the Crops Committee was authorized to appoint either another committee or themselves to function in studying the situation and to submit to the Crops Division at the next annual meeting a plan for the organization of the Crops Division.

During the past three years the programs of the Society have shown a marked improvement in quality and in interest. It has been the policy in setting up the program committees of the Divisions of the Society to have them in charge of personnel who themselves are actively engaged in research and familiar with the more recent advances, which unquestionably is reflected in the quality of the programs and in the interest shown. In this connection it would be appropriate to suggest that crops investigators might well plan to present each year at the Society meetings the most recent advances in their research to a somewhat greater degree than has been the case in the immediate past.

Of special interest to Division personnel was the election of Mr. F. D. Richey, Chief of the Bureau of Plant Industry, as Vice President of the Society. Mr. Richey will automatically succeed to the presidency of the Society for the year 1936-37.

Dr. K. S. Quisenberry, who is being transferred to Lincoln, Nebr., to have charge of the cooperative improvement program at that point, in addition to his coordination duties in connection with the hard red winter wheat improvement program, visited the Nebraska Agricultural Experiment Station for two or three days early in December for the purpose of conferring with officials of the Station and Mr. C. A. Suneson relative to the work already under way.

Mr. Suneson is being transferred to Davis, Calif., to take the place of Dr. G. A. Wiebe. Dr. Wiebe is being transferred to Washington to assist Dr. H. V. Harlan in the barley project. His activities will be particularly concerned with investigations in the barley area of the upper Mississippi Valley.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

GEORGIA

GEORGIA COASTAL PLAIN EXPERIMENT STATION, TIFTON (Corn Breeding, H. S. Garrison) (Nov. 30)

On November 4 the writer planted about one acre of corn breeding material at Canal Point, Florida, along the eastern shore of Lake Okeechobee. This material includes lines and hybrids received from most of the corn breeders in the Division. A recent report from Canal Point stated that the corn was growing rapidly and would be ready to thin about November 30.

Drs. M. A. McCall and E. C. Auchter, assistant chiefs of the Bureau of Plant Industry, and Dr. Victor R. Boswell, of the Division of Fruit and Vegetable Crops and Diseases, were recent visitors at the Station. Director S. H. Starr, Mr. Otis Woodard, horticulturist, and the writer accompanied them on a trip to the Bureau stations at Cairo and Albany, Ga.

Because of extremely dry conditions in October the small grain plots at Tifton were not sown until after the rains of November 6 and 7. The oats nursery was sown November 15 and 16.

The maximum temperature for November was 87° on the 1st, 2nd, and 6th, and the minimum was 25° on the 25th.

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Dec. 5)

The temperatures in November were lower than in November 1934. The maximum temperature was 88° and 80° or above on 10 days. The minimum was 32° on the 23rd and 40° or below on 7 days. The average mean temperature was 3° less than for November 1934. This is the first time ice has occurred in November since 1932.

The total precipitation of 3.43 inches was recorded on 5 days, there being a heavy rainfall on only 2 days. The rains were very beneficial. The soil had become too dry to permit satisfactory plowing, and farmers had been forced to pump water for their cattle.

Threshing on the Station, not including nursery and row plots, was completed November 26. In some experiments the yields were much higher and in others lower than they were last year. As a whole, however, they are satisfactory.

WISCONSIN

AGRICULTURAL EXPERIMENT STATION, MADISON (Wheat Scab, J. G. Dickson)
(Dec. 7)

On November 29 and 30 the following people met at the Experiment Station to confer on cooperative barley quality studies:

Mr. L. C. Burnett, Ames, Iowa, Dr. F. R. Inner, St. Paul, Minn., Mr. W. L. Ingles, Federal Grain Supervision, Milwaukee, Wis., Dr. C. S. Reddy, Ames, Iowa, Mr. Leon H. Robbins, C.M.St.P.&P. R. R., Agricultural and Colonization Department, Chicago, Ill., Mr. T. E. Stoa, State College Station, Fargo, N. Dak., Mr. H. R. Sumner, Northwest Crop Improvement Association, Minneapolis, Minn., and Mr. J. W. Thayer, East Lansing, Mich.

On Monday, December 2, the group drove to Milwaukee, together with Drs. O. S. Aarnoldt, B. A. Burkhardt, B. D. Leith, H. L. Shands, R. G. Shands, A. D. Dickson, and J. G. Dickson, to confer with the maltsters and brewers of Milwaukee and to inspect their plants.

Mr. P. E. Hoppe attended the meetings of the American Society of Agronomy in Chicago on December 5 and 6. He read a paper entitled "Methods of Measuring Comparative Amounts of Ear Rot in Dent Corn", by P. E. Hoppe and J. R. Holbert, at the meeting of the Crops Division on December 6.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Dec. 2)

All seed heads of sorghum and broomcorn have been selected and harvested for this season. It is probable that threshing of the sorghums for yield will be done as soon as the heads are thoroughly dry.

The maximum temperature for November was 73° on the 9th; the minimum was 21° on the 12th. The precipitation was 2.28 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (Dec. 2)

Winter wheat grew very little during November owing to cool weather. Late seedlings emerged very slowly. Winter wheat plots sown on October 28 emerged on November 9 as compared with the wheat plots seeded 2 days later (November 1) that did not emerge until November 19. A November 15 seeding has not emerged to date, although the plumule sheaths have been just below the surface of the soil for several days.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding. A. M. Brunson) (Dec. 2)

The weather at Manhattan this past fall has been the most disagreeable in a number of years in which to do field work. After an extremely hot, dry period in July and the first half of August the rains started about August 17 and the ground has hardly been dry since. More than 20 inches of precipitation have been recorded in the last 3 1/2 months and every month has an excess over normal. The rain has been

distributed in small amounts falling frequently so that there has been comparatively little run-off, allowing the subsoil to become well soaked again after the past two dry years.

Corn yields for Kansas are very small except in a few favored localities, the yield for the entire State being estimated at only about 6.5 bushels per acre, according to the November 10 report. Considerable soft corn has resulted from late plantings because of the hard freeze October 3 and 4. The continued wet weather since that time has aggravated the soft-corn problem, as there has been little opportunity for corn to dry in the field. Some concern is being felt as to the seed corn situation for next spring because of depleted reserves, practically a crop failure in many parts of the State, and frost injury to corn which otherwise might have been used for seed.

Grain sorghums are late and very difficult to harvest this year. Some silos are not filled yet. There is comparatively little of the sorghum crop fit for seed, particularly in the sorgos, such as Atlas and Kansas Orange.

Wheat is entering the winter in unusually promising condition in eastern Kansas, and a general soaking rain over nearly the entire State during the past week has revived hopes for the wheat crop even in western sections hardest hit by the drought.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Nov. 30)

Cold, cloudy weather with frequent snowsqualls prevailed during the first 3 weeks of November, but during the past week the temperature has been milder with more sunshine. About 0.80 inch of precipitation has fallen, mostly in the form of snow. The ground is now nearly bare, only two or three inches of snow remaining in stubble fields. A minimum temperature of -8° was recorded on the 2nd and 5th, while the maximum was in the forties on the warmer days.

The moisture from the melting snow has soaked into the soil, but the temperature in November was not high enough to germinate the winter grain that lay in dry soil in September and October.

Progress is being made on the annual report for 1935.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (Dec. 2)

There was very little snow in November and the temperatures were above normal. Several days of strong wind accompanied by soil drifting were experienced. Winter wheat seedlings on the cereal project have not emerged to date but continue to make slow progress toward emergence. The precipitation was 0.11 inch. The maximum temperature was 55° on November 29; the minimum was -14° on November 1. The mean temperature was 30° .

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Nov. 30)

The weather conditions in November have been very favorable for fall work, with the exception of 3 cold days following snowstorms. The minimum temperatures ranged from 7° to 4°, while the mean for the month was 30.6°, or 7° below the 4-year mean. The precipitation for the month totaled 1.30 inches, which is normal for November.

Growth of winter wheat has been extremely slow since germination. Only occasional fields can be found with enough growth to be visible. Farmers are still seeding winter wheat in parts of Cache Valley, but the major part of all fall work is now completed.

Considerable time has been spent on the preparation of the annual report and working numerous genetic crosses both of F₂ and F₃ generations.
